Appendix B

Assessment Results by State

Appendix B

Assessment Results by State

This appendix contains the results of water energy resource assessments of the 50 states of the United States. The state results are presented in the two part table, Table B-0, to facilitate lookup of power potential values and comparison of these values amongst the states. This summary information is followed by 50 sections, each developed to a particular state. Each section has the same format, which includes the following tables and figures:

- Table of total, developed, excluded, and available power potential by power class

- Pie chart showing the developed, excluded, and available fractions of the total power potential

- Pie chart showing the high power, high head/low power, and low head/low power fractions of the total available power potential

- Pie chart showing the fractions of the low head/low power power potential corresponding to the operating envelopes of conventional turbines, unconventional systems, and microhydro technology classes

- Two panel power potential distribution map with the upper panel showing the locations of low head/low power power potential sites differentiated by the corresponding low head/low power hydropower technology class and the lower panel showing the locations of existing hydroelectric power plants and sites of high head/low power potential.

Negative available power potential values in the high head/high power class occurred for six states: Florida, Iowa, Nebraska, Nevada, North Dakota, and South Dakota. In addition, negative excluded power potential values in the high head/high power class occurred for two of these states: Nevada and South Dakota. These anomalies are thought to have occurred because the developed power is actually generated using resources that are in other power classes, e.g., where a reservoir overlays resources other than those in the high head/high power class.

In order to address these anomalies, we reasoned that in the cases where negative excluded potentials occurred in the high head/high power power class, all the power potential in exclusion zones for this power class has been developed. Thus the excluded power potential for high head/high power class in these cases was set equal to zero. The amount of developed power in the high head/high power class exceeding the difference between the total high head/high power power potential and the sum of the developed and excluded power potentials in this power class was "rolled down" into lower power classes. In the cases of Florida, Iowa, and Nebraska, the "excess" developed power was simply moved to the low head/high power class. If the excess developed power could not all be moved into the low head/high power class without creating a negative available power potential value, the developed power in this class was raised to the maximum value, resulting in a zero available power for this class. The balance of the excess developed power was moved to the low power classes. In the case of Nevada, which had developed power in the low power power classes, the balance of the excess developed power was apportioned to the low power classes by the amount of developed power that was originally assigned to them. In the cases of North and South Dakota where there was no developed power in the low power class, the excess developed power was rolled down into the low power classes by the maximum amount they could absorb without creating a negative value for available power potential in the power class. Data values affected by assuming that all excluded potential has been developed and by developed power redistribution are shown in yellow font on a green background in the data tables in this appendix.

The results presented in this appendix do not include any assessment of the feasibility of developing or the actual availability for development of any power resources. The term "available" used in the tables and figures in this appendix only denotes the net amount of power potential after subtracting the amounts of developed and excluded power potential from the gross amount of power potential.

Table B-0A. Summary of state water energy resources power potentials (annual mean power) by category and power class.

| Name | Total Potential | | | | Available Potential | | | Available Low Head/Low Power Potential | | | Name |
	Total (MW)	Developed (MW)	Excluded (MW)	Available (MW)	High Power (MW)	High Head/ Low Power (MW)	Low Head/ Low Power (MW)	Conventional Turbines (MW)	Unconventional Systems (MW)	Microhydro (MW)	
Alabama	3,165	1,113	44	2,008	1,168	240	600	240	91	269	Alabama
Alaska	87,028	171	42,429	44,428	36,240	5,572	2,616	897	409	1,310	Alaska
Arizona	3,587	928	1,244	1,415	483	465	467	154	38	275	Arizona
Arkansas	4,904	405	407	4,092	3,281	323	488	155	110	223	Arkansas
California	26,638	4,699	11,628	10,311	7,770	1,919	622	194	76	352	California
Colorado	7,413	246	2,275	4,892	2,978	1,329	585	239	59	287	Colorado
Connecticut	432	55	18	359	210	101	48	12	11	25	Connecticut
Delaware	24	0	0	24	15	2	7	1	2	4	Delaware
Florida	446	32	14	400	176	13	211	41	70	100	Florida
Georgia	2,249	429	208	1,612	831	229	552	186	123	243	Georgia
Hawaii	2,304	20	459	1825	1,682	134	9	1	0	8	Hawaii
Idaho	18,794	1,288	5,545	11,961	9,386	2,036	539	178	71	290	Idaho
Illinois	1,902	27	297	1,578	1,146	39	393	103	100	190	Illinois
Indiana	1,587	67	4	1,516	1,124	82	310	116	61	133	Indiana
Iowa	1,124	95	127	902	361	49	492	183	108	201	Iowa
Kansas	989	1	3	985	418	38	529	190	80	259	Kansas
Kentucky	4,116	383	46	3,687	3,112	197	378	134	49	195	Kentucky
Louisiana	2,236	89	129	2,018	1,764	11	243	68	72	103	Louisiana
Maine	2,766	432	71	2,263	1,511	467	285	104	39	142	Maine
Maryland	845	203	298	344	211	74	59	21	3	35	Maryland
Massachussetts	675	126	29	520	358	102	60	20	6	34	Massachussetts
Michigan	1,220	209	224	787	194	180	413	152	51	210	Michigan
Minnesota	1,410	128	249	1,033	445	166	422	139	72	211	Minnesota
Mississippi	4,496	0	450	4,046	3,477	61	508	172	127	209	Mississippi
Missouri	4,549	129	117	4,303	3,395	185	723	277	98	348	Missouri
Montana	6,379	1,192	2,179	3,008	1,515	897	596	208	91	297	Montana
Nebraska	1,222	152	103	967	348	69	550	280	71	199	Nebraska
Nevada	1,137	263	147	727	0	343	385	41	8	336	Nevada
New Hampshire	1,181	187	89	905	578	239	88	34	16	38	New Hampshire
New Jersey	300	6	38	256	168	37	51	19	5	27	New Jersey
New Mexico	1,729	30	368	1,331	383	490	458	110	36	312	New Mexico
New York	4,902	2,861	110	1,931	429	1,036	466	170	69	227	New York
North Carolina	2,750	610	491	1,649	911	378	360	117	71	172	North Carolina
North Dakota	289	270	8	11	0	0	11	0	0	11	North Dakota
Ohio	1,280	63	81	1,136	604	144	388	152	54	182	Ohio
Oklahoma	1,511	239	23	1,249	481	114	654	282	152	220	Oklahoma
Oregon	18,397	3,271	5,835	9,291	6,691	1,931	669	229	89	351	Oregon
Pennsylvania	4,754	284	488	3,982	2,535	949	498	185	56	257	Pennsylvania
Rhode Island	37	4	0	33	15	9	9	2	1	6	Rhode Island
South Carolina	1,325	428	49	848	509	78	261	69	79	113	South Carolina
South Dakota	858	622	67	169	0	0	169	0	0	169	South Dakota
Tennessee	5,284	1,082	472	3,730	2,900	397	433	145	78	210	Tennessee
Texas	2,336	189	119	2,028	361	242	1,425	438	242	745	Texas
Utah	3,924	135	933	2,856	1,513	970	373	87	32	254	Utah
Vermont	1,144	128	49	967	538	345	84	36	15	33	Vermont
Virginia	2,220	147	194	1,879	1,120	410	349	127	49	173	Virginia
Washington	30,803	11,470	6,893	12,440	10,645	1,385	410	138	74	198	Washington
West Virginia	3,427	140	753	2,534	1,848	452	234	82	33	119	West Virginia
Wisconsin	1,595	264	189	1,142	602	138	402	131	68	203	Wisconsin
Wyoming	6,058	117	2,768	3,173	1,904	801	468	194	47	227	Wyoming
U.S. Total	289,741	35,429	88,761	165,551	118,334	25,868	21,350	7,253	3,362	10,735	

Note 1: No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.
Note 2: The U.S. total, excluded, and available potentials listed in Table A-0 are 1–4% higher than the values in this table, which contains more accurate U.S. values.
Note 3: Numbers in yellow font indicate values that have been adjusted. See power table in individual state section of this appendix for explanation.

Table B-0B. Summary of state water energy resources power potential percentages of totals by category and power class.

Name	Total[a]	Developed[b]	Excluded[b]	Available[b]	High Power[c]	High Head/Low Power[c]	Low Head/Low Power[c]	Conventional Turbines[d]	Unconventional Systems[d]	Microhydro[d]	Name
		Total Potential			Available Potential			Available Low Head/Low Power Potential			
Alabama	1%	35%	1%	63%	58%	12%	30%	40%	15%	45%	Alabama
Alaska	31%	0%	45%	55%	83%	11%	5%	34%	15%	51%	Alaska
Arizona	1%	26%	35%	39%	34%	33%	33%	33%	8%	59%	Arizona
Arkansas	2%	8%	8%	83%	80%	8%	12%	32%	23%	46%	Arkansas
California	9%	18%	44%	39%	75%	19%	6%	31%	12%	57%	California
Colorado	3%	3%	31%	66%	61%	27%	12%	41%	10%	49%	Colorado
Connecticut	0%	13%	4%	83%	58%	28%	13%	25%	23%	52%	Connecticut
Delaware	0%	0%	0%	100%	63%	8%	29%	14%	29%	57%	Delaware
Florida	0%	7%	3%	90%	44%	3%	53%	19%	33%	47%	Florida
Georgia	1%	19%	9%	72%	52%	14%	34%	34%	22%	44%	Georgia
Hawaii	1%	1%	20%	79%	92%	7%	0%	11%	0%	89%	Hawaii
Idaho	6%	7%	30%	64%	78%	17%	5%	33%	13%	54%	Idaho
Illinois	1%	1%	16%	83%	73%	2%	25%	26%	25%	48%	Illinois
Indiana	1%	4%	0%	96%	74%	5%	20%	37%	20%	43%	Indiana
Iowa	0%	8%	11%	80%	40%	5%	55%	37%	22%	41%	Iowa
Kansas	0%	0%	0%	100%	42%	4%	54%	36%	15%	49%	Kansas
Kentucky	1%	9%	1%	90%	84%	5%	10%	35%	13%	52%	Kentucky
Louisiana	1%	4%	6%	90%	87%	1%	12%	28%	30%	42%	Louisiana
Maine	1%	16%	3%	82%	67%	21%	13%	36%	14%	50%	Maine
Maryland	0%	24%	35%	41%	61%	22%	17%	36%	5%	59%	Maryland
Massachussetts	0%	19%	4%	77%	69%	20%	12%	33%	10%	57%	Massachussetts
Michigan	0%	17%	18%	65%	25%	23%	52%	37%	12%	51%	Michigan
Minnesota	0%	9%	18%	73%	43%	16%	41%	33%	17%	50%	Minnesota
Mississippi	2%	0%	10%	90%	86%	2%	13%	34%	25%	41%	Mississippi
Missouri	2%	3%	3%	95%	79%	4%	17%	38%	14%	48%	Missouri
Montana	2%	19%	34%	47%	50%	30%	20%	35%	15%	50%	Montana
Nebraska	0%	12%	8%	79%	36%	7%	57%	51%	13%	36%	Nebraska
Nevada	0%	23%	13%	64%	0%	47%	53%	11%	2%	87%	Nevada
New Hampshire	0%	16%	8%	77%	64%	26%	10%	39%	18%	43%	New Hampshire
New Jersey	0%	2%	13%	85%	66%	14%	20%	37%	10%	53%	New Jersey
New Mexico	1%	2%	21%	77%	29%	37%	34%	24%	8%	68%	New Mexico
New York	2%	58%	2%	39%	22%	54%	24%	36%	15%	49%	New York
North Carolina	1%	22%	18%	60%	55%	23%	22%	33%	20%	48%	North Carolina
North Dakota	0%	93%	3%	4%	0%	0%	100%	0%	0%	100%	North Dakota
Ohio	0%	5%	6%	89%	53%	13%	34%	39%	14%	47%	Ohio
Oklahoma	1%	16%	2%	83%	39%	9%	52%	43%	23%	34%	Oklahoma
Oregon	6%	18%	32%	51%	72%	21%	7%	34%	13%	52%	Oregon
Pennsylvania	2%	6%	10%	84%	64%	24%	13%	37%	11%	52%	Pennsylvania
Rhode Island	0%	11%	0%	89%	45%	27%	27%	22%	11%	67%	Rhode Island
South Carolina	0%	32%	4%	64%	60%	9%	31%	26%	30%	43%	South Carolina
South Dakota	0%	72%	8%	20%	0%	0%	100%	0%	0%	100%	South Dakota
Tennessee	2%	20%	9%	71%	78%	11%	12%	33%	18%	48%	Tennessee
Texas	1%	8%	5%	87%	18%	12%	70%	31%	17%	52%	Texas
Utah	1%	3%	24%	73%	53%	34%	13%	23%	9%	68%	Utah
Vermont	0%	11%	4%	85%	56%	36%	9%	43%	18%	39%	Vermont
Virginia	1%	7%	9%	85%	60%	22%	19%	36%	14%	50%	Virginia
Washington	10%	37%	22%	40%	86%	11%	3%	34%	18%	48%	Washington
West Virginia	1%	4%	22%	74%	73%	18%	9%	35%	14%	51%	West Virginia
Wisconsin	1%	17%	12%	72%	53%	12%	35%	33%	17%	50%	Wisconsin
Wyoming	2%	2%	46%	52%	60%	25%	15%	41%	10%	49%	Wyoming
U.S. Average		12%	30%	58%	72%	15%	12%	34%	16%	50%	

a. Regional percentage of total U.S. hydropower potential
b. Percentage of regional total hydropower potential
c. Percentage of regional total available hydropower potential
d. Percentage of regional total low head/low power hydropower potential

Note 1: No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.
Note 2: Bolded figures indicate values greater than or equal to the U.S. average.
Note 3: Blue background indicates constituent with the largest percentage.
Note 4: Numbers in yellow font indicate values that have been adjusted. See power table in individual state sections of this appendix for explanation.

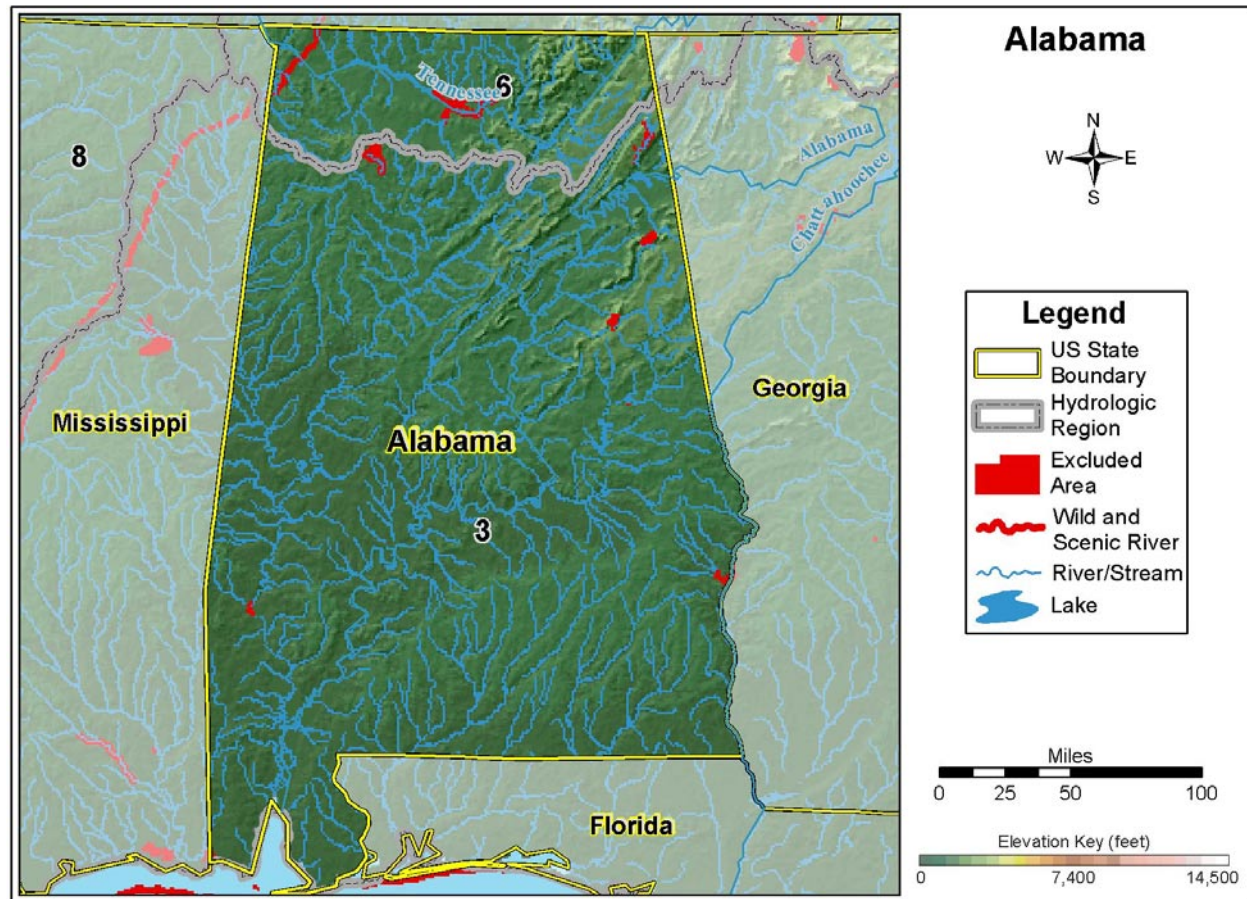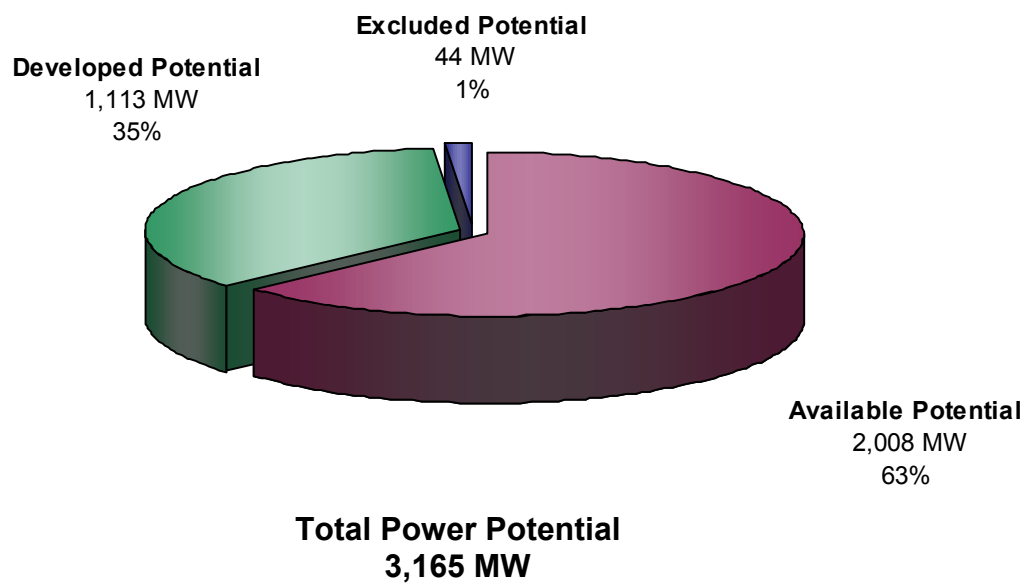*Intentionally left blank*

B.1   Alabama

Figure B-1. Alabama.

Table B-1. Summary of results of water energy resource assessment of Alabama.

Annual Mean Power (MW)	Total	Developed	Excluded	Available[a]
TOTAL POWER	**3,165**	**1,113**	**44**	**2,008**
TOTAL HIGH POWER	**2,312**	**1,113**	**31**	**1,168**
High Head/High Power	1,491	1,113	22	356
Low Head/High Power	821	0	9	812
TOTAL LOW POWER	**853**	**0**	**13**	**840**
High Head/Low Power	246	0	6	240
Low Head/Low Power	607	0	7	600
Conventional Turbine	242	0	2	240
Unconventional Systems	93	0	2	91
Microhydro	272	0	3	269

a. No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.

Excluded Potential
44 MW
1%

Developed Potential
1,113 MW
35%

Available Potential
2,008 MW
63%

Total Power Potential
3,165 MW

Figure B-2. Power category distribution of the total power potential (annual mean power) of water energy resources in Alabama.

High Power
1,168 MW
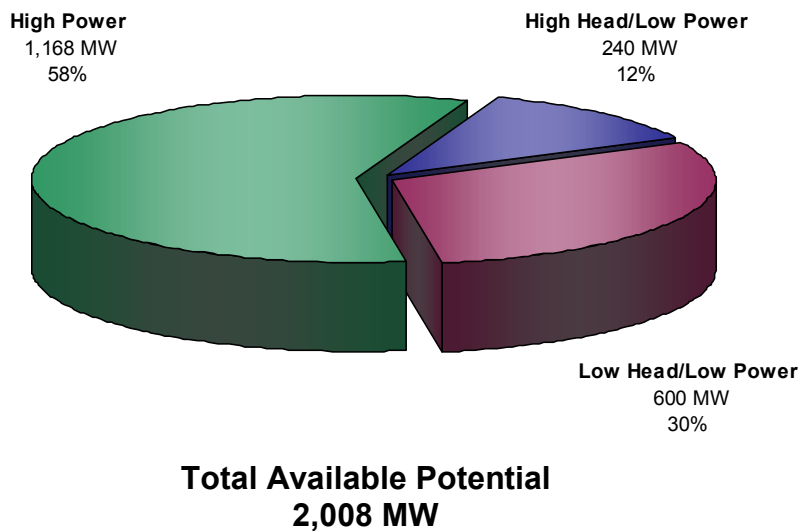58%

High Head/Low Power
240 MW
12%

Low Head/Low Power
600 MW
30%

Total Available Potential
2,008 MW

Figure B-3. Power class distribution of the available power potential (annual mean power) of water energy resources in Alabama.

Microhydro Total
272 MW

**Microhydro Developed
& Excluded**
3 MW

Microhydro Available
269 MW
(45% of total available)

**Conventional
Turbines Total
242 MW**

**Conventional
Turbines Available**
240 MW
(40% of total available)

**Conventional Turbines
Developed and Excluded**
2 MW

**Unconventional
Systems Total
93 MW**

Unconventional Systems Available
91 MW
(15% of total available)

**Unconventional
Systems Developed & Excluded**
2 MW

Low Head/Low Power Totals
Total Potential:	**607 MW**
Developed Potential:	**0 MW**
Excluded Potential:	**7 MW**
Available Potential:	**600 MW**

Figure B-4. Distribution of the low head/low power power potential (annual mean power) of water energy resources in Alabama among three low head/low power hydropower technology classes.
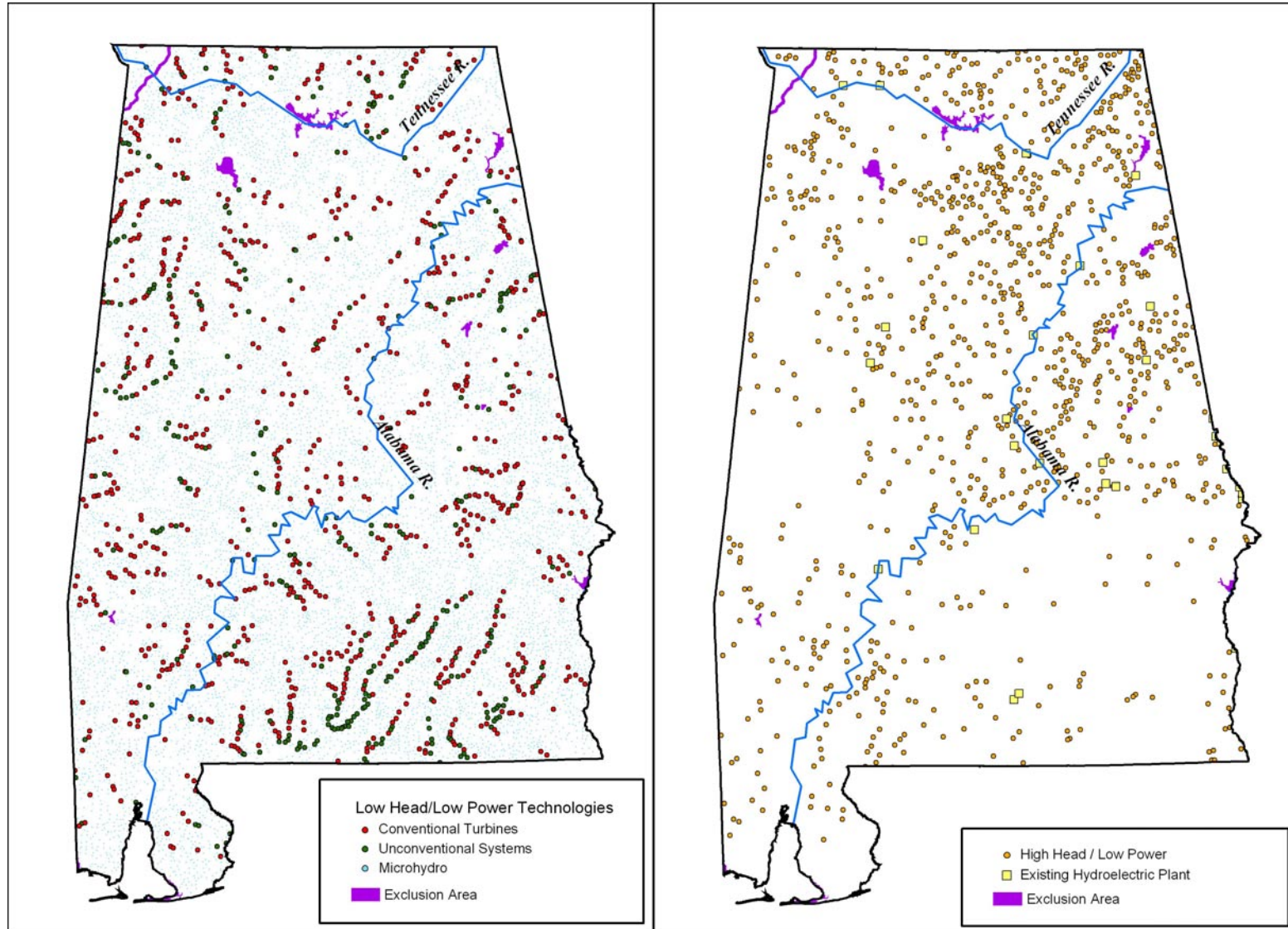
Figure B-5. Low head/low power and high head/low power water energy sites, and existing hydroelectric plants in Alabama.

B.2 Alaska
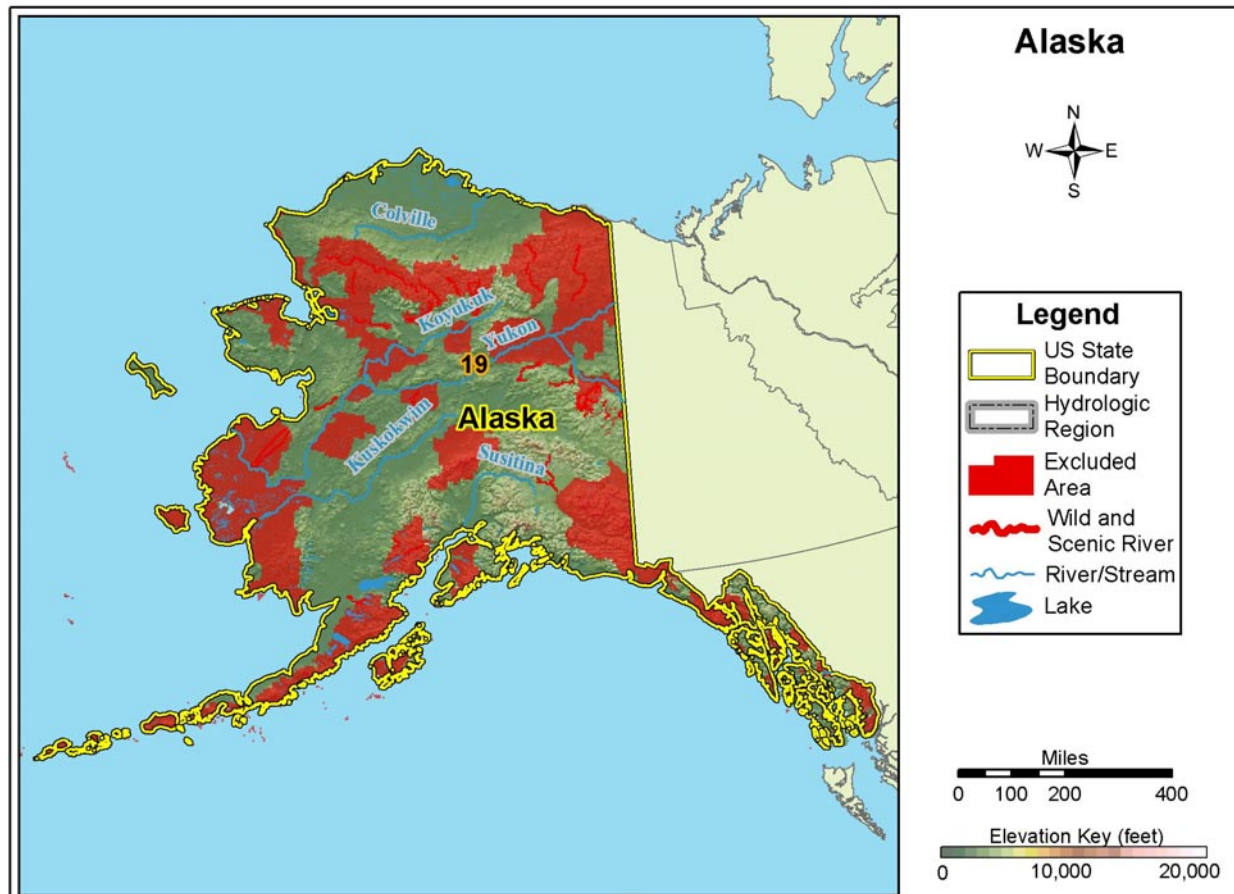
Figure B-6. Alaska.

Table B-2. Summary of results of water energy resource assessment of Alaska.

Annual Mean Power (MW)	Total	Developed	Excluded	Available[a]
TOTAL POWER	**87,028**	**171**	**42,429**	**44,428**
TOTAL HIGH POWER	**72,632**	**167**	**36,225**	**36,240**
High Head/High Power	**45,782**	**167**	**22,246**	**23,369**
Low Head/High Power	**26,850**	**0**	**13,979**	**12,871**
TOTAL LOW POWER	**14,396**	**4**	**6,204**	**8,188**
High Head/Low Power	**10,243**	**4**	**4,667**	**5,572**
Low Head/Low Power	**4,153**	**0**	**1,537**	**2,616**
Conventional Turbine	1,418	0	521	897
Unconventional Systems	683	0	274	409
Microhydro	2,052	0	742	1,310

a. No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.

Excluded
Potential
42,429 MW
49%

Available Potential
44,428 MW
51%

Developed
Potential
171 MW
0%

Total Power Potential
87,028 MW
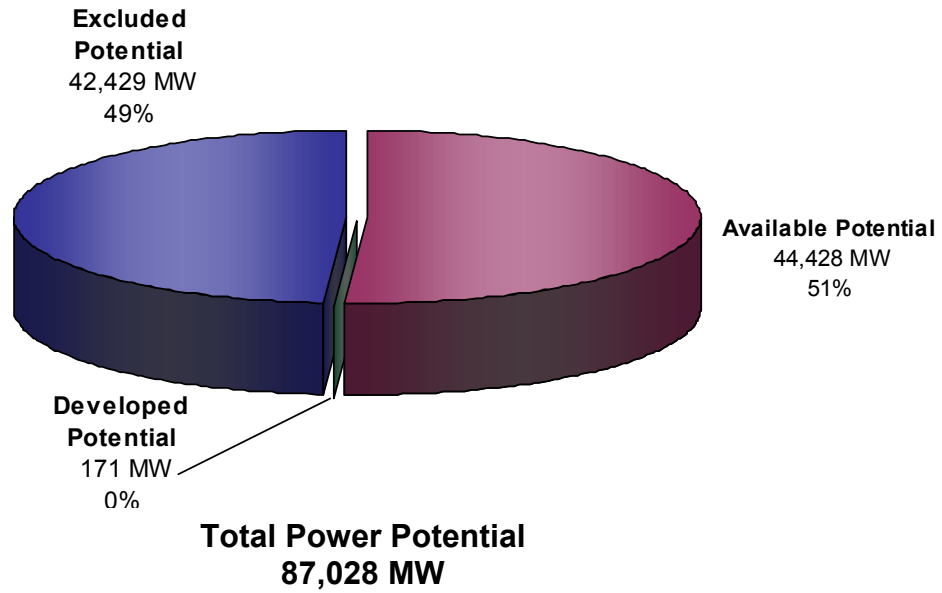
Figure B-7. Power category distribution of the total power potential (annual mean power) of water energy resources in Alaska.

High Head/Low Power
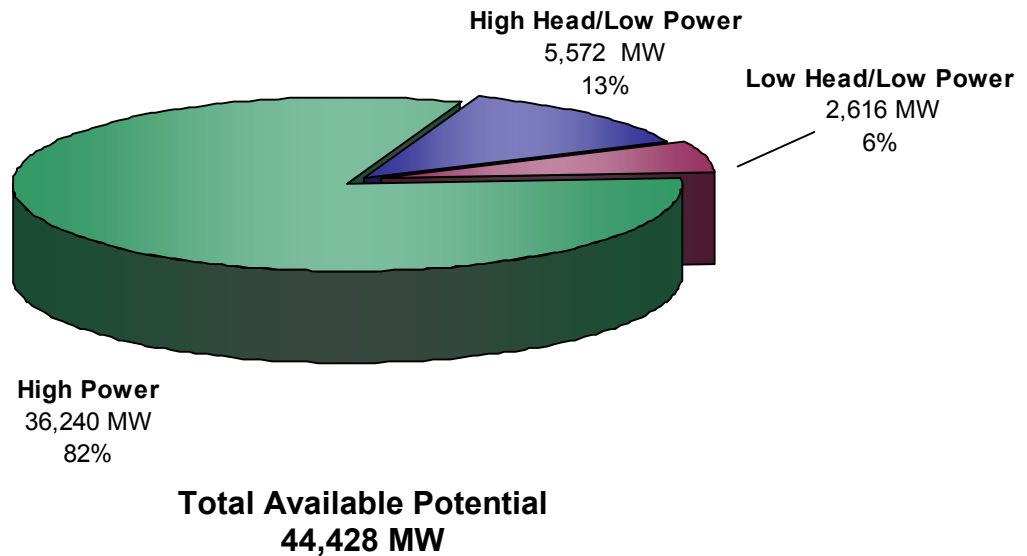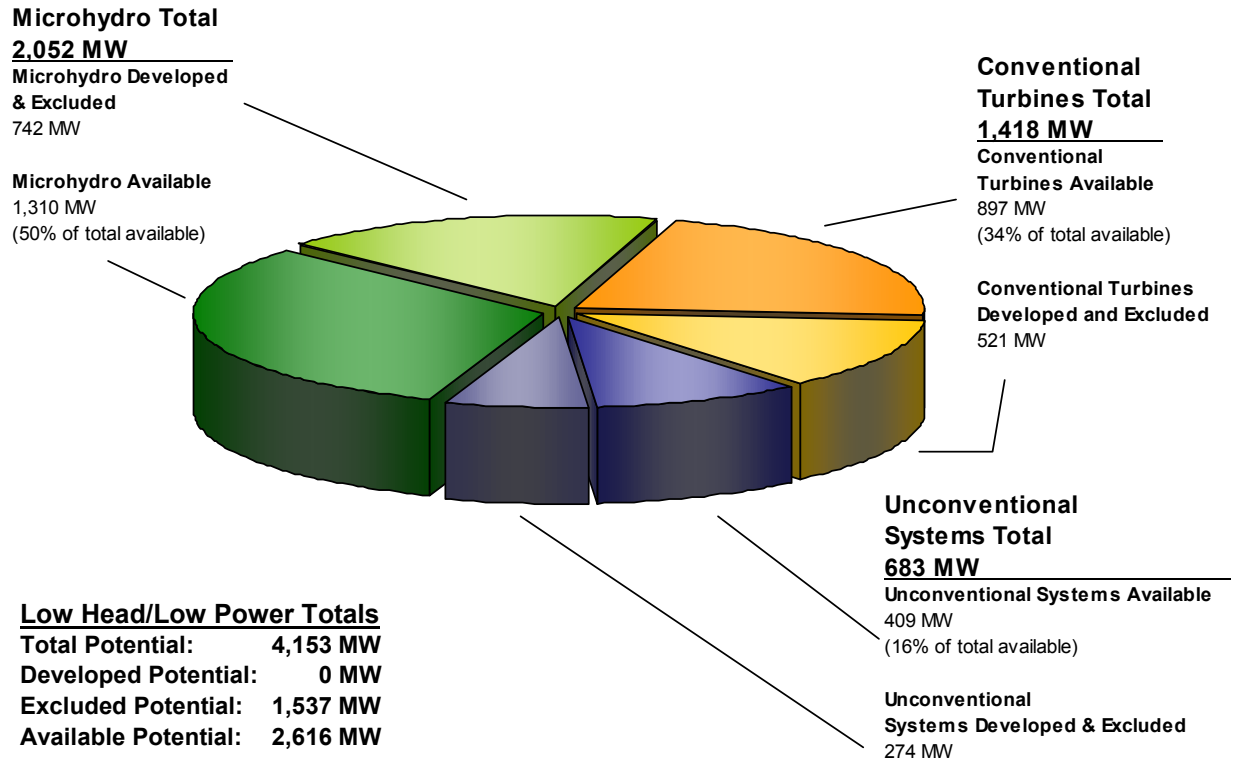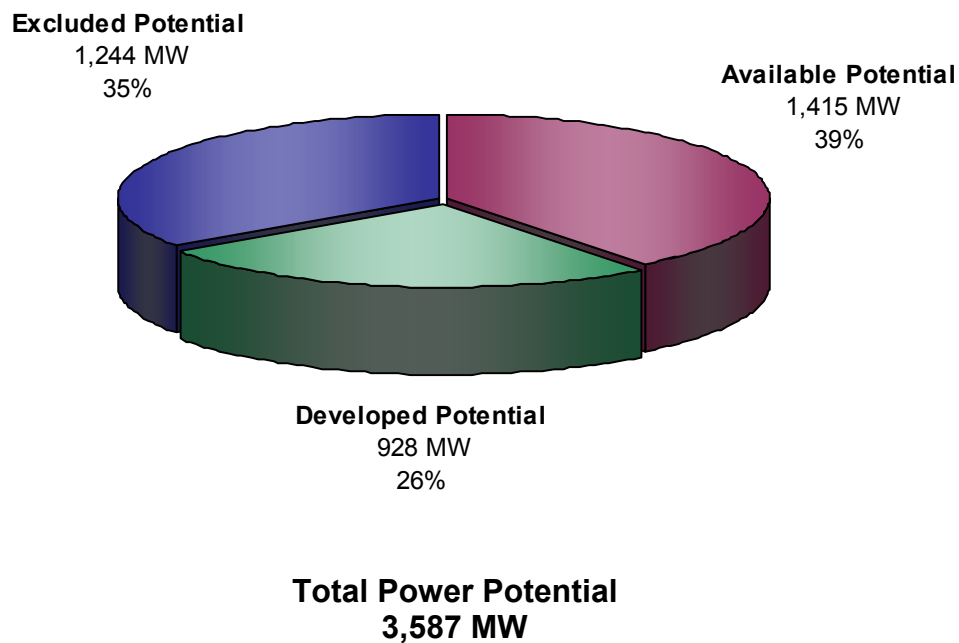5,572 MW
13%

Low Head/Low Power
2,616 MW
6%

High Power
36,240 MW
82%

Total Available Potential
44,428 MW

Figure B-8. Power class distribution of the available power potential (annual mean power) of water energy resources in Alaska.

Microhydro Total
2,052 MW
Microhydro Developed
& Excluded
742 MW

Microhydro Available
1,310 MW
(50% of total available)

**Conventional
Turbines Total
1,418 MW**
Conventional
Turbines Available
897 MW
(34% of total available)

Conventional Turbines
Developed and Excluded
521 MW

**Unconventional
Systems Total
683 MW**
Unconventional Systems Available
409 MW
(16% of total available)

Unconventional
Systems Developed & Excluded
274 MW

Low Head/Low Power Totals
Total Potential: 4,153 MW
Developed Potential: 0 MW
Excluded Potential: 1,537 MW
Available Potential: 2,616 MW

Figure B-9. Distribution of the low head/low power power potential (annual mean power) of water energy resources in Alaska among three low head/low power hydropower technology classes.
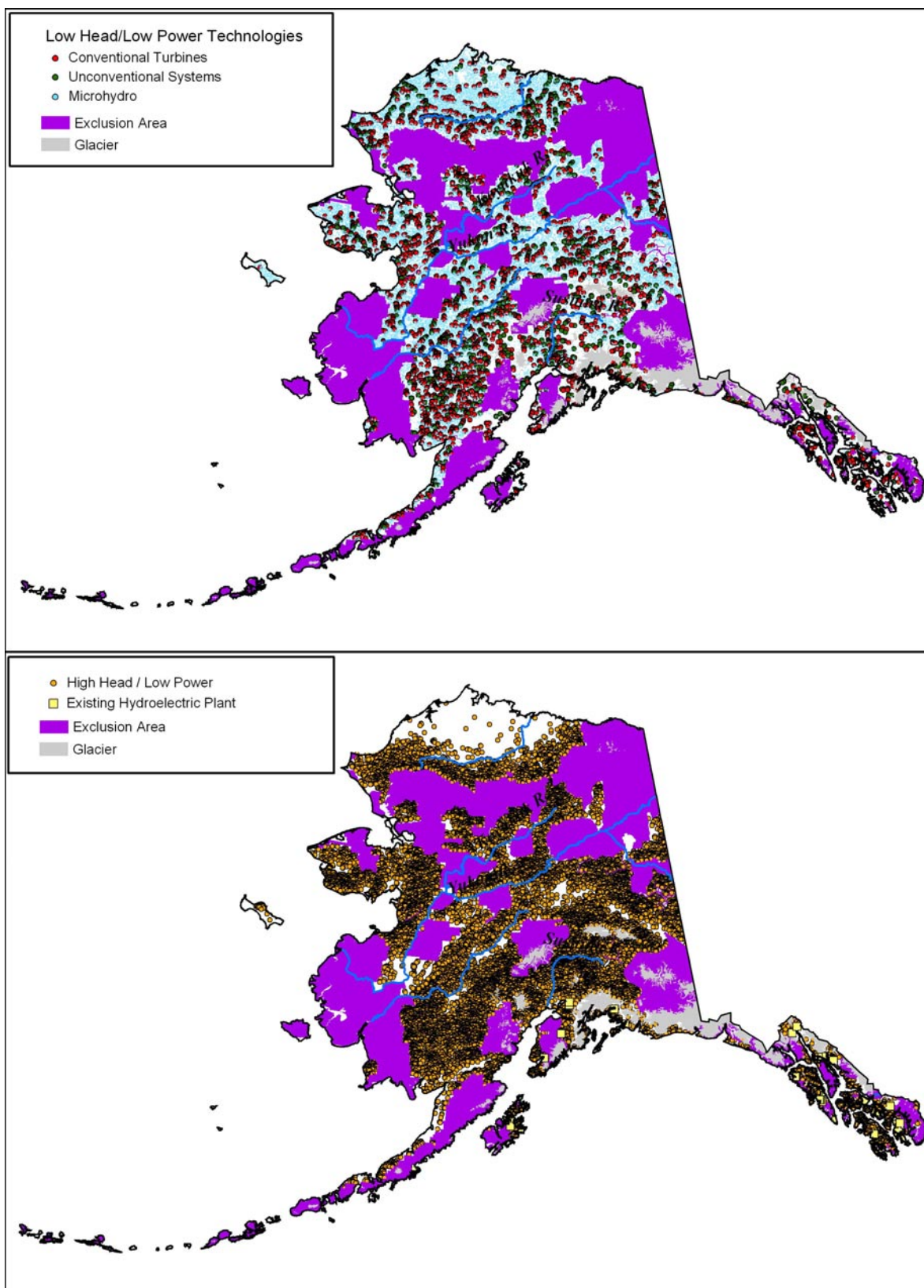
Figure B-10. Low head/low power and high head/low power water energy sites, and existing hydroelectric plants in Alaska.

B.3 Arizona
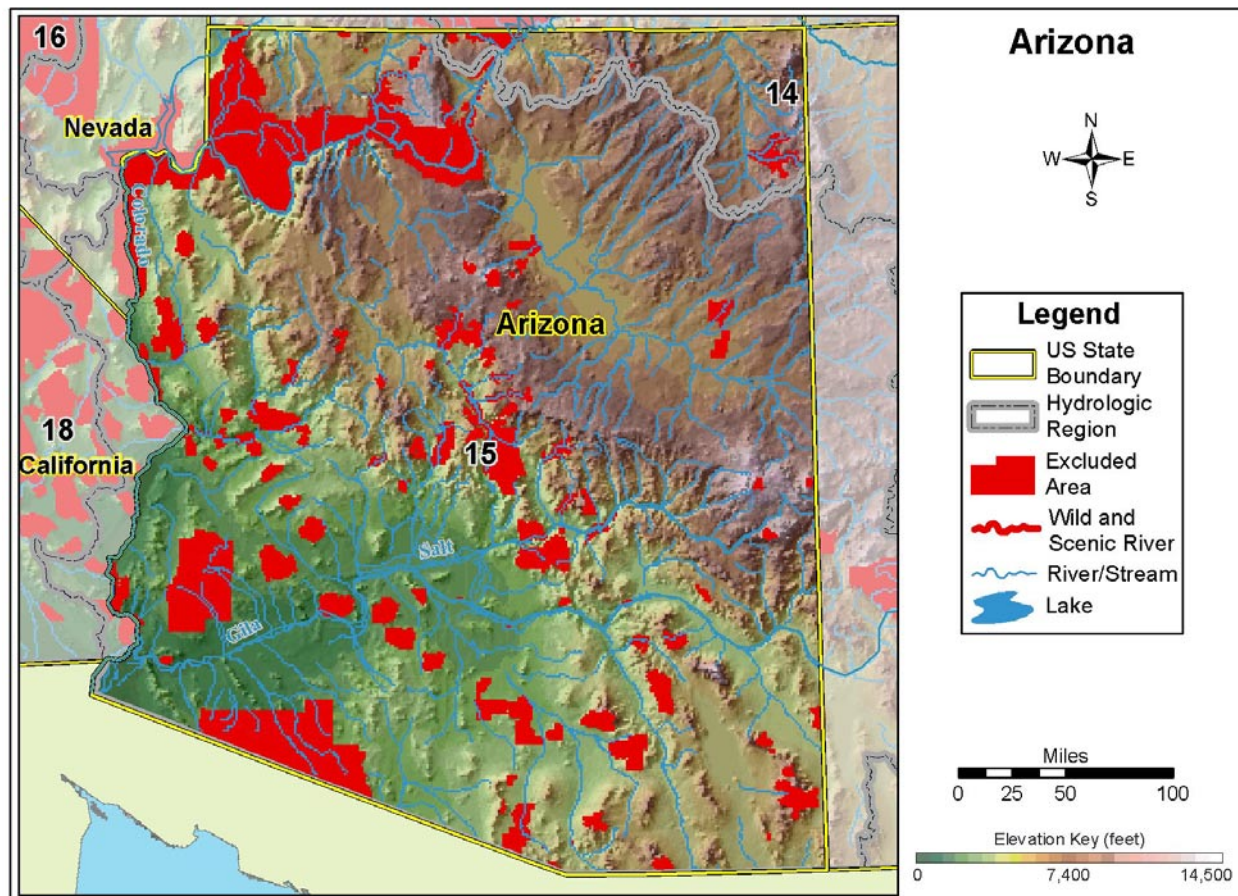
Figure B-11. Arizona.

Table B-3. Summary of results of water energy resource assessment of Arizona.

Annual Mean Power (MW)	Total	Developed	Excluded	Available[a]
TOTAL POWER	**3,587**	**928**	**1,244**	**1,415**
TOTAL HIGH POWER	**2,396**	**927**	**986**	**483**
High Head/High Power	1,764	927	434	403
Low Head/High Power	632	0	552	80
TOTAL LOW POWER	**1,191**	**1**	**258**	**932**
High Head/Low Power	643	1	177	465
Low Head/Low Power	548	0	81	467
Conventional Turbine	171	0	17	154
Unconventional Systems	50	0	12	38
Microhydro	327	0	52	275
a. No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.				

Excluded Potential
1,244 MW
35%

Available Potential
1,415 MW
39%

Developed Potential
928 MW
26%

Total Power Potential
3,587 MW

Figure B-12. Power category distribution of the total power potential (annual mean power) of water energy resources in Arizona.
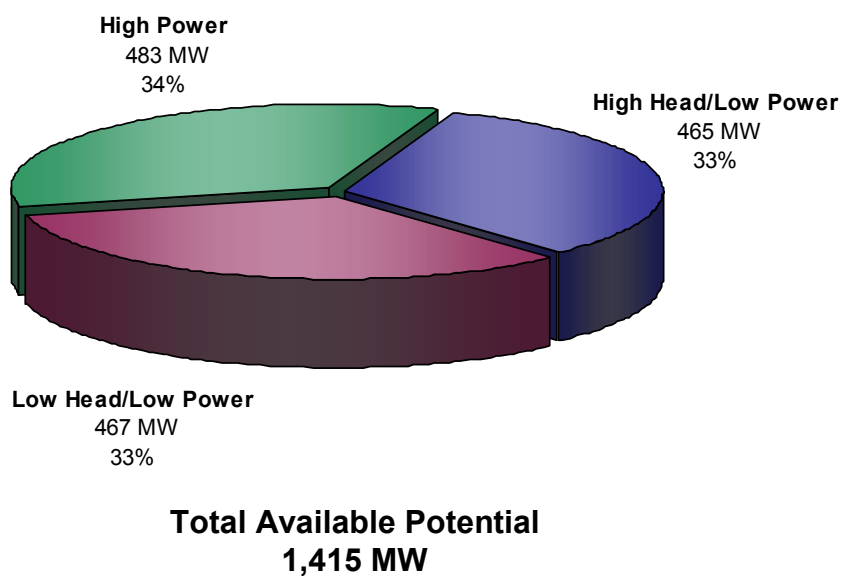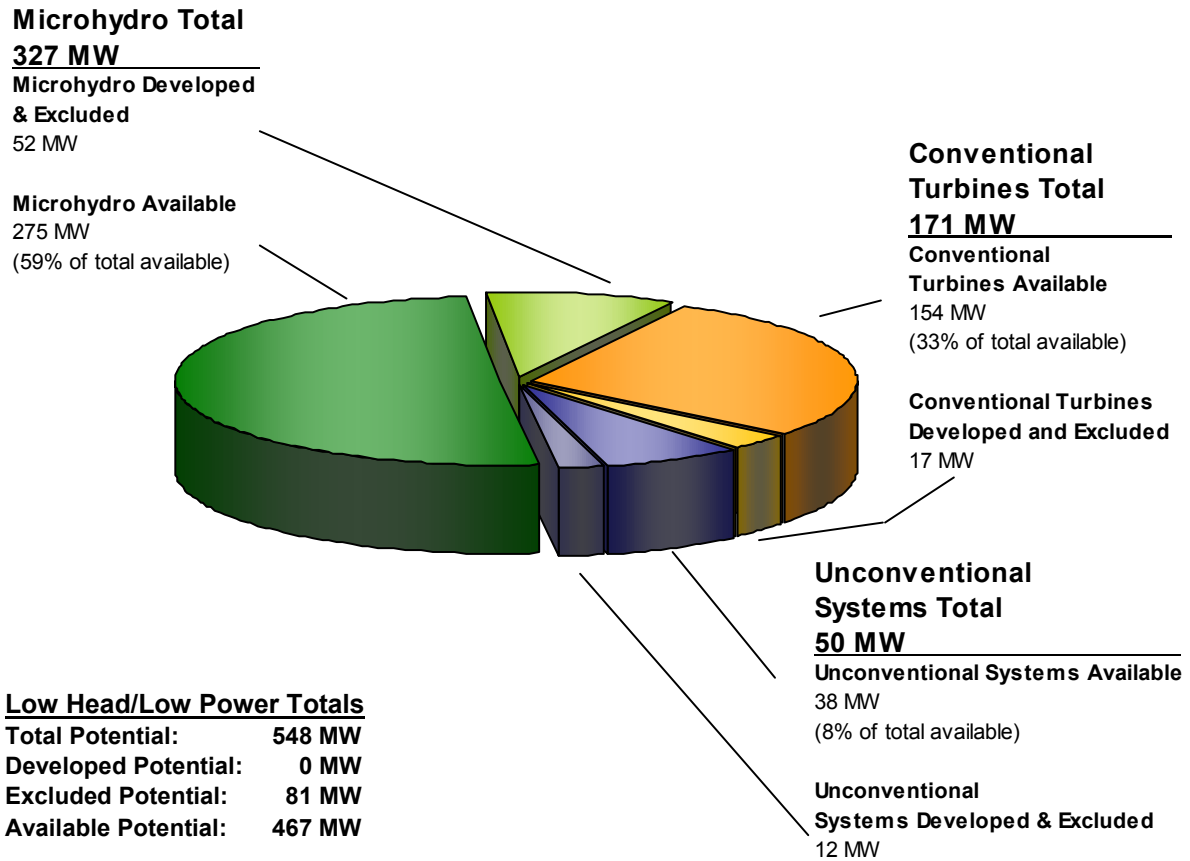
High Power
483 MW
34%

High Head/Low Power
465 MW
33%

Low Head/Low Power
467 MW
33%

Total Available Potential
1,415 MW

Figure B-13. Power class distribution of the available power potential (annual mean power) of water energy resources in Arizona.

Microhydro Total
327 MW
Microhydro Developed
& Excluded
52 MW

Microhydro Available
275 MW
(59% of total available)

Conventional
Turbines Total
171 MW
Conventional
Turbines Available
154 MW
(33% of total available)

Conventional Turbines
Developed and Excluded
17 MW

Unconventional
Systems Total
50 MW
Unconventional Systems Available
38 MW
(8% of total available)

Unconventional
Systems Developed & Excluded
12 MW

Low Head/Low Power Totals
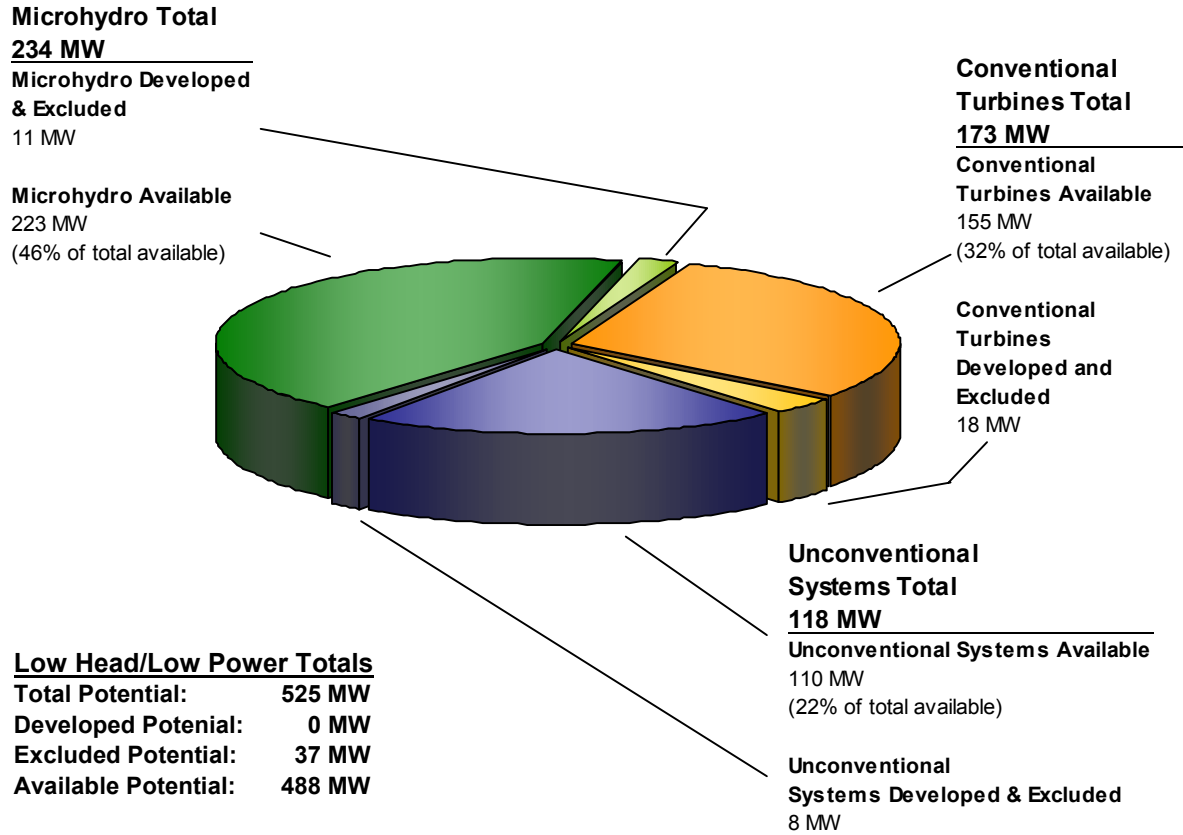|	
Total Potential:	**548 MW**
Developed Potential:	**0 MW**
Excluded Potential:	**81 MW**
Available Potential:	**467 MW**

Figure B-14. Distribution of the low head/low power power potential (annual mean power) of water energy resources in Arizona among three low head/low power hydropower technology classes.
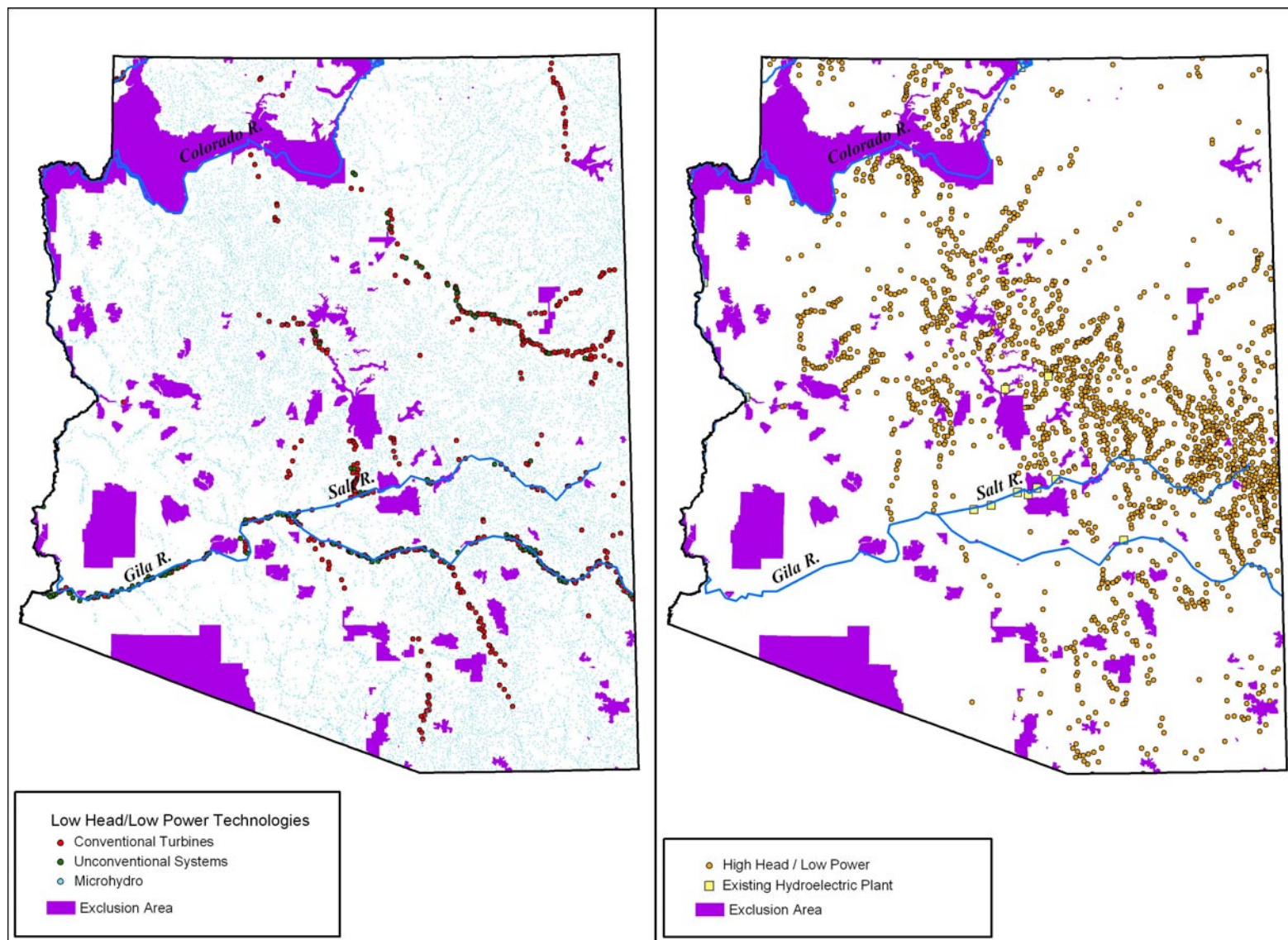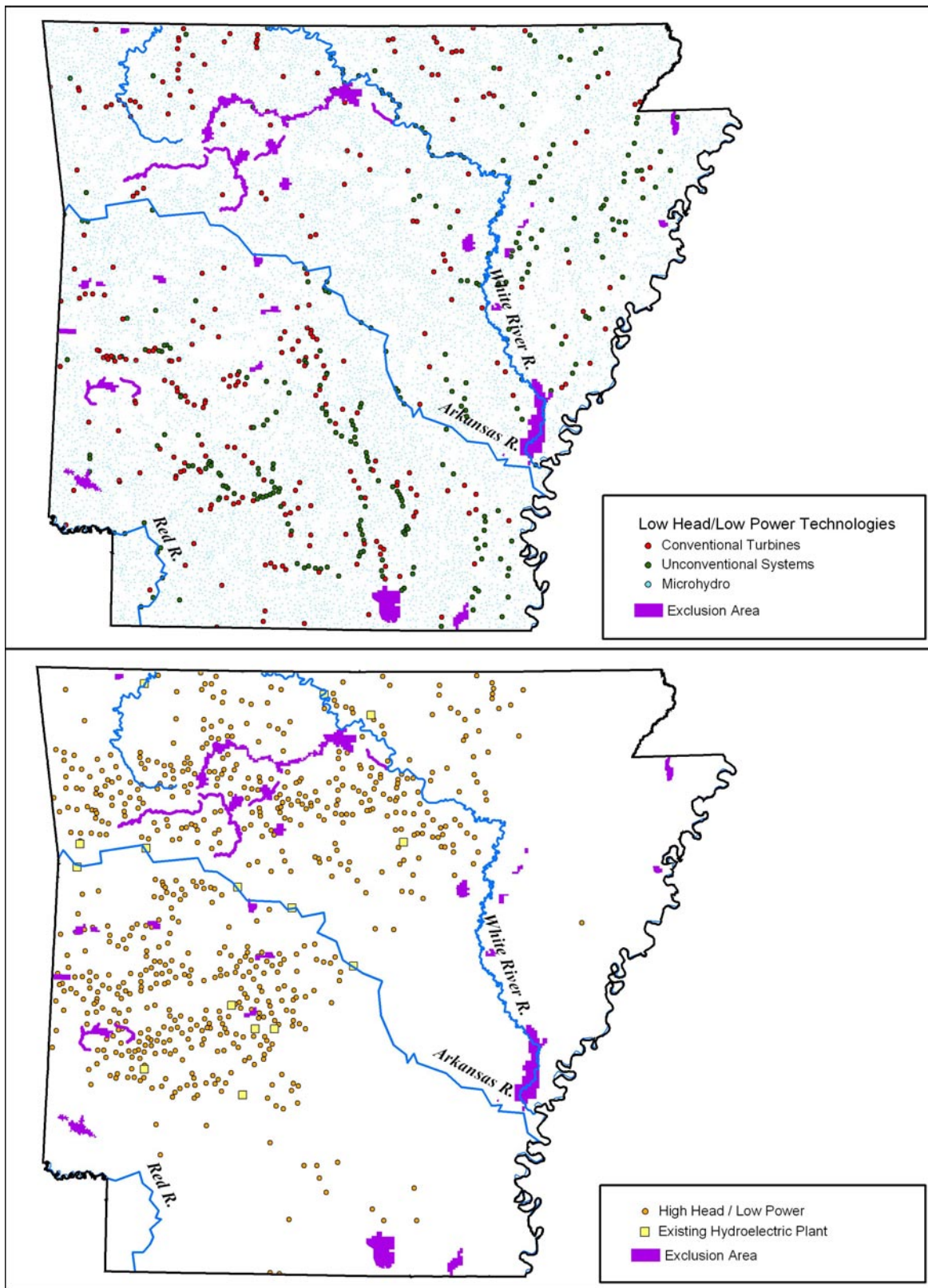
Figure B-15. Low head/low power and high head/low power water energy sites, and existing hydroelectric plants in Arizona.

B.4 Arkansas
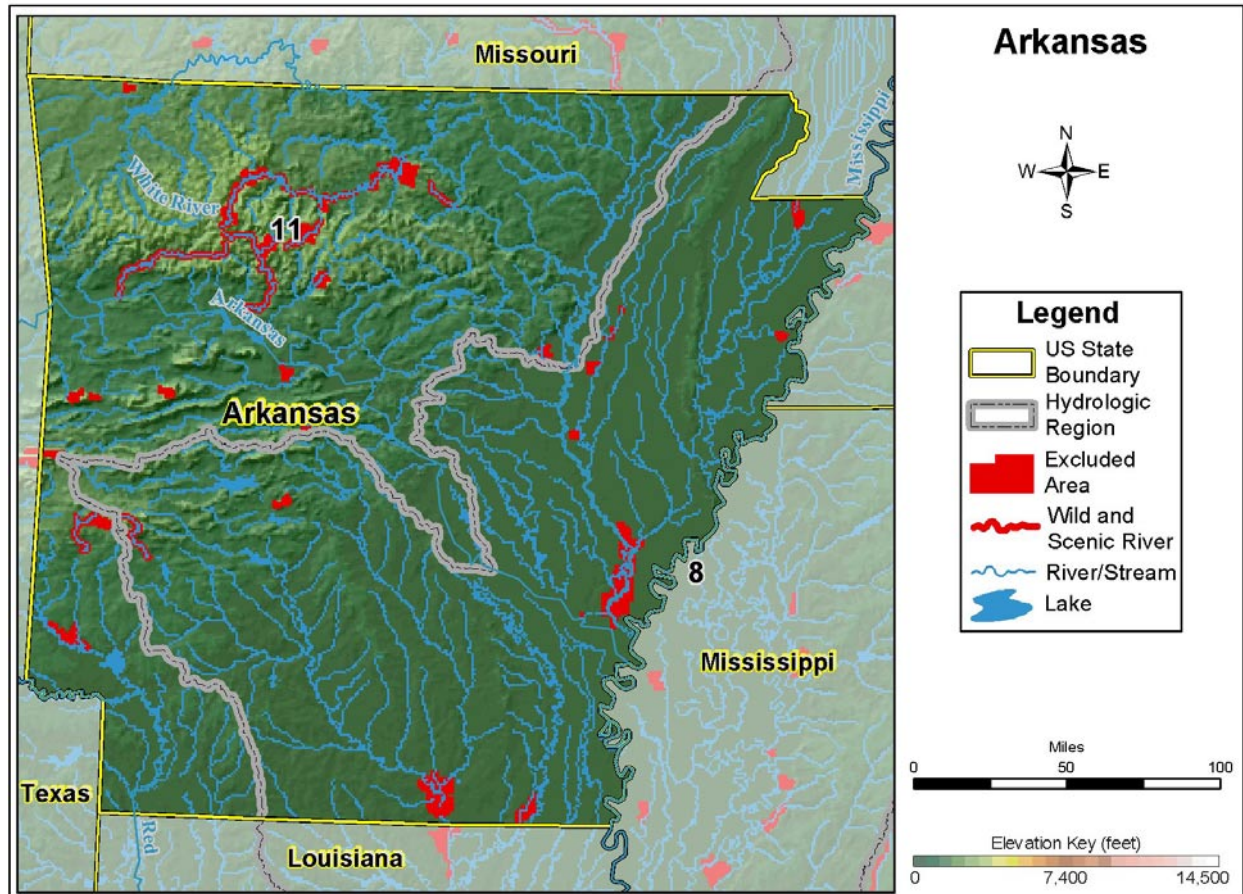
Figure B-16. Arkansas.

Table B-4. Summary of results of water energy resource assessment of Arkansas.

Annual Mean Power (MW)	Total	Developed	Excluded	Available[a]
TOTAL POWER	**4,904**	**405**	**407**	**4,092**
TOTAL HIGH POWER	**3,999**	**404**	**314**	**3,281**
High Head/High Power	389	307	43	39
Low Head/High Power	3,610	97	271	3,242
TOTAL LOW POWER	**905**	**1**	**93**	**811**
High Head/Low Power	380	1	56	323
Low Head/Low Power	525	0	37	488
Conventional Turbine	173	0	18	155
Unconventional Systems	118	0	8	110
Microhydro	234	0	11	223

a. No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.

Excluded Potential
407 MW
8%

Developed Potential
405 MW
8%

Available Potential
4,092 MW
84%

Total Power Potential
4,904 MW
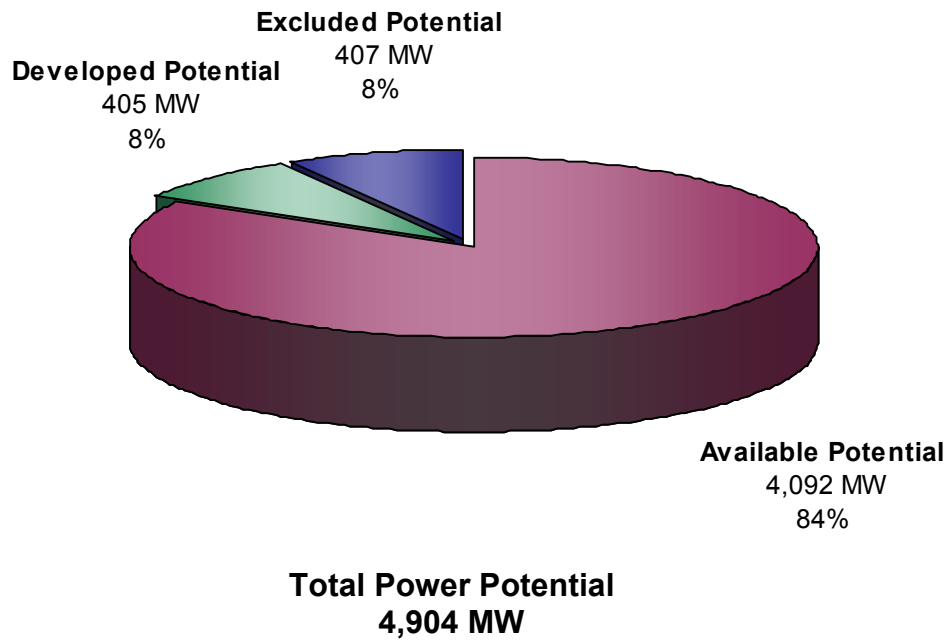
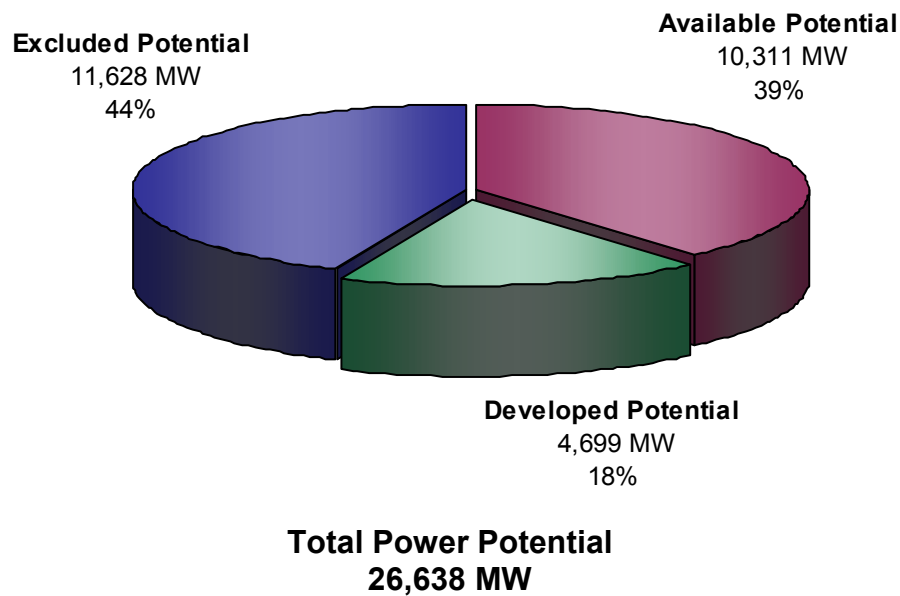Figure B-17. Power category distribution of the total power potential (annual mean power) of water energy resources in Arkansas.

High Head/Low Power
323 MW
8%

Low Head/Low Power
488 MW
12%

High Power
3,281 MW
80%

Total Available Potential
4,092 MW
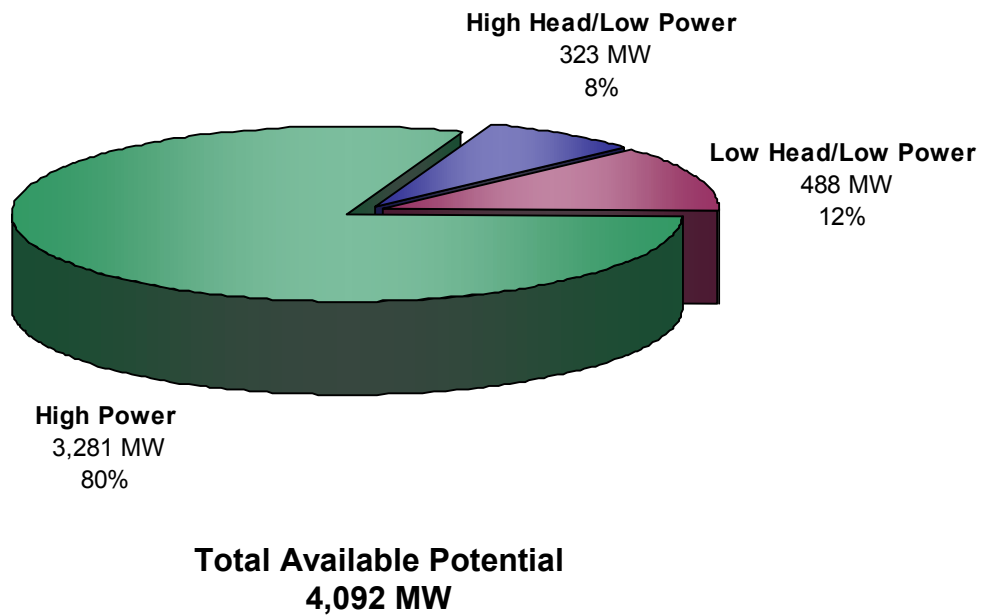
Figure B-18. Power class distribution of the available power potential (annual mean power) of water energy resources in Arkansas.

Microhydro Total
234 MW
Microhydro Developed & Excluded
11 MW

Microhydro Available
223 MW
(46% of total available)

Conventional Turbines Total
173 MW
Conventional Turbines Available
155 MW
(32% of total available)

Conventional Turbines Developed and Excluded
18 MW

Unconventional Systems Total
118 MW
Unconventional Systems Available
110 MW
(22% of total available)

Unconventional Systems Developed & Excluded
8 MW

Low Head/Low Power Totals
Total Potential:	**525 MW**
Developed Potenial:	**0 MW**
Excluded Potential:	**37 MW**
Available Potential:	**488 MW**

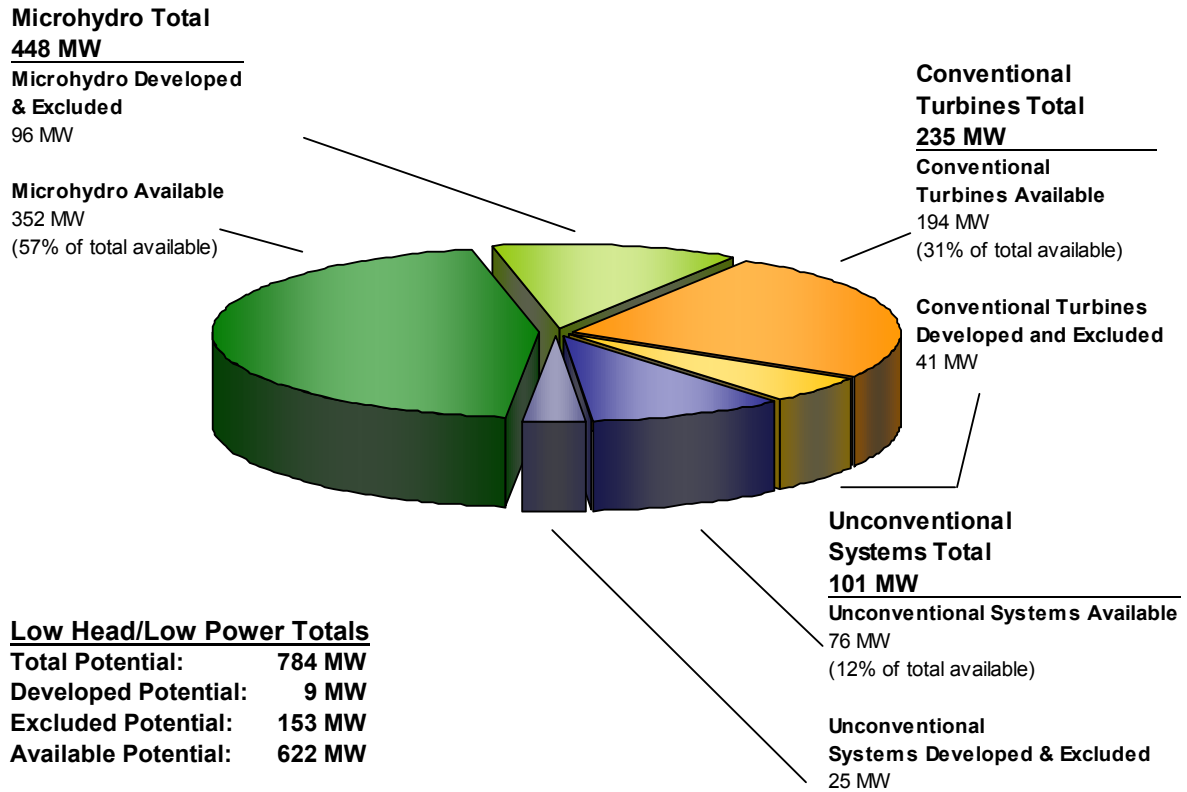Figure B-19. Distribution of the low head/low power power potential (annual mean power) of water energy resources in Arkansas among three low head/low power hydropower technology classes.
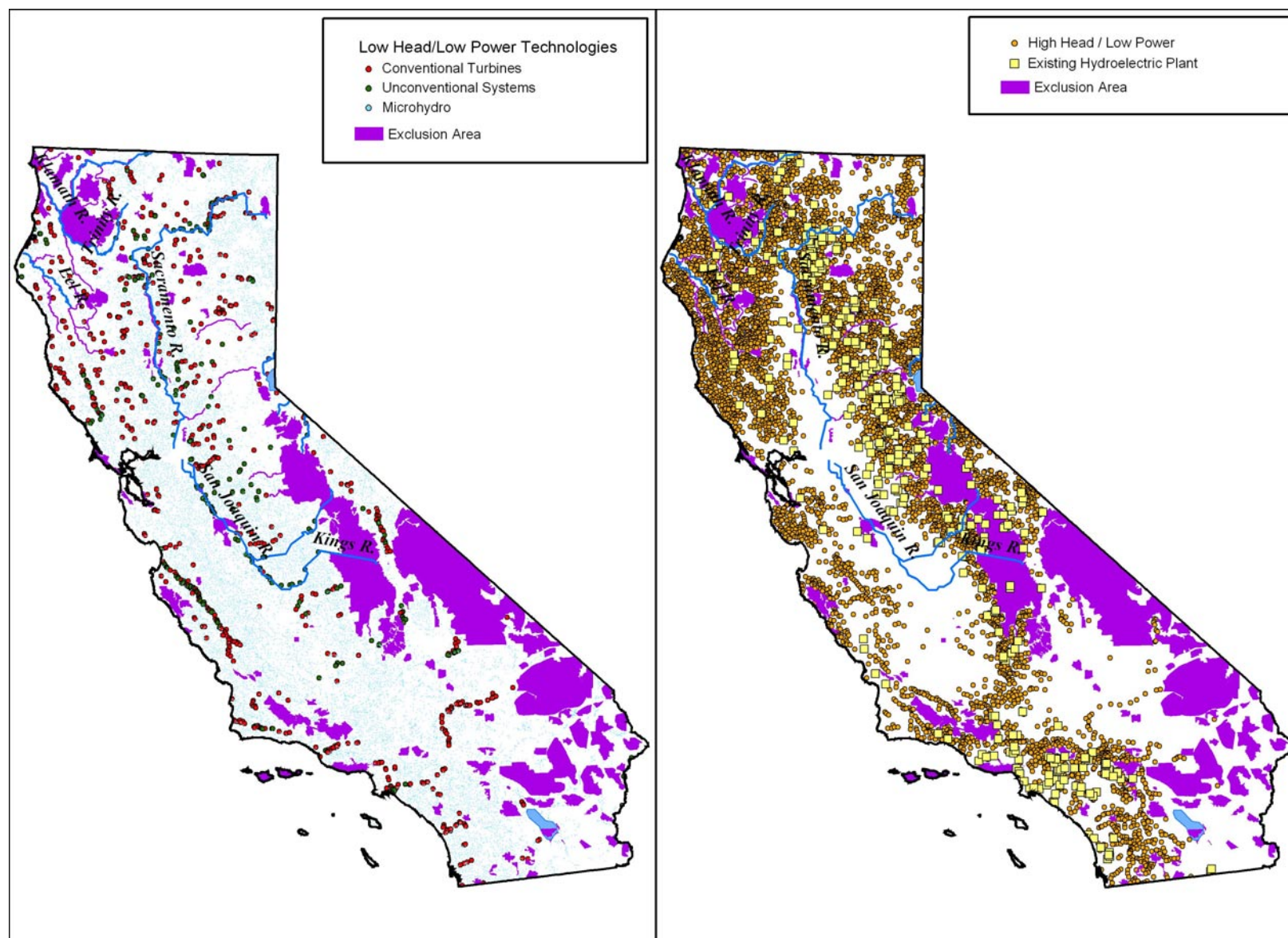
Figure B-20. Low head/low power and high head/low power water energy sites, and existing hydroelectric plants in Arkansas.

B.5 California
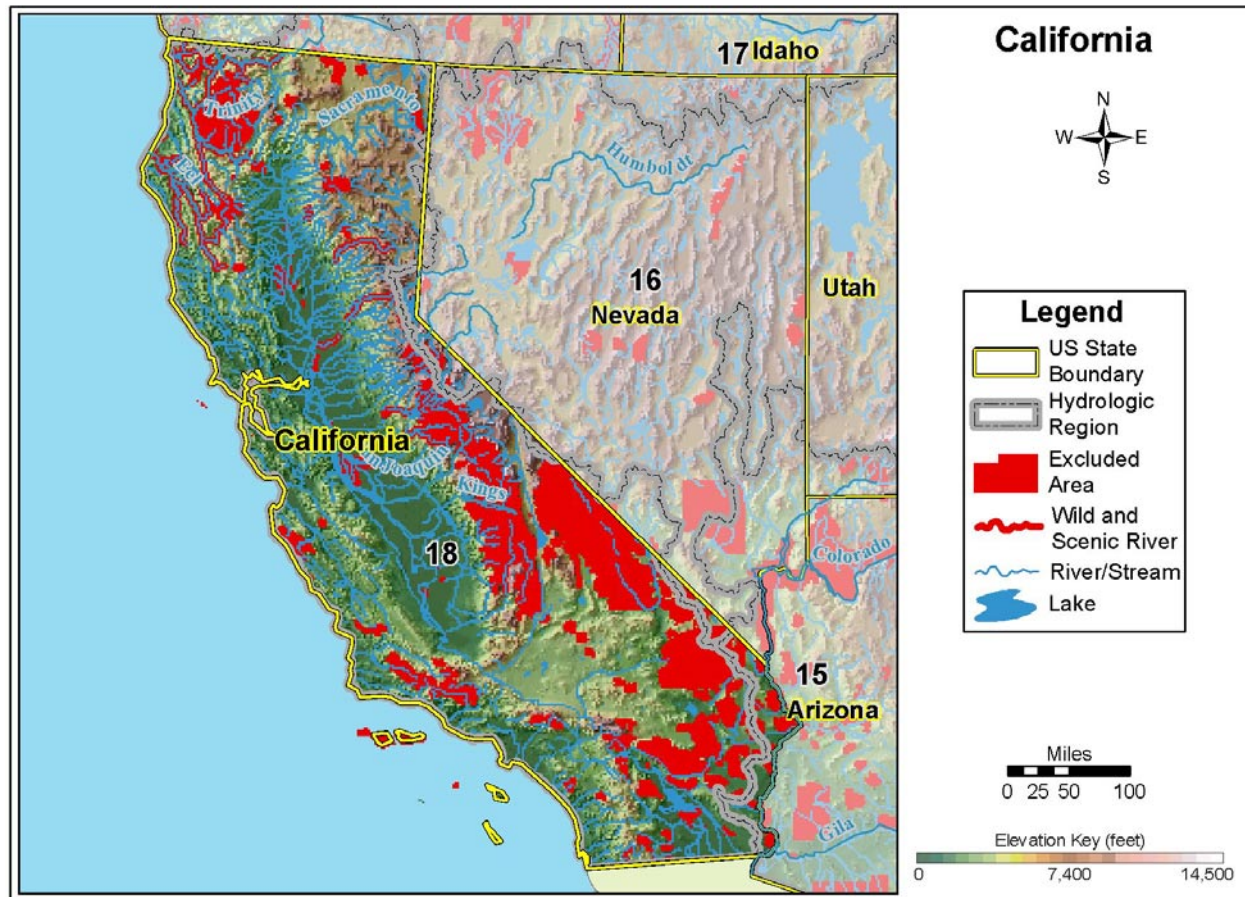
Figure B-21. California.

Table B-5. Summary of results of water energy assessment of California.

Annual Mean Power (MW)	Total	Developed	Excluded	Available[a]
TOTAL POWER	**26,638**	**4,699**	**11,628**	**10,311**
TOTAL HIGH POWER	**22,920**	**4,643**	**10,507**	**7,770**
High Head/High Power	21,366	4,621	9,471	7,274
Low Head/High Power	1,554	22	1,036	496
TOTAL LOW POWER	**3,718**	**56**	**1,121**	**2,541**
High Head/Low Power	2,934	47	968	1,919
Low Head/Low Power	784	9	153	622
Conventional Turbine	235	5	36	194
Unconventional Systems	101	1	24	76
Microhydro	448	3	93	352
a. No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.				

Excluded Potential
11,628 MW
44%

Available Potential
10,311 MW
39%

Developed Potential
4,699 MW
18%

Total Power Potential
26,638 MW

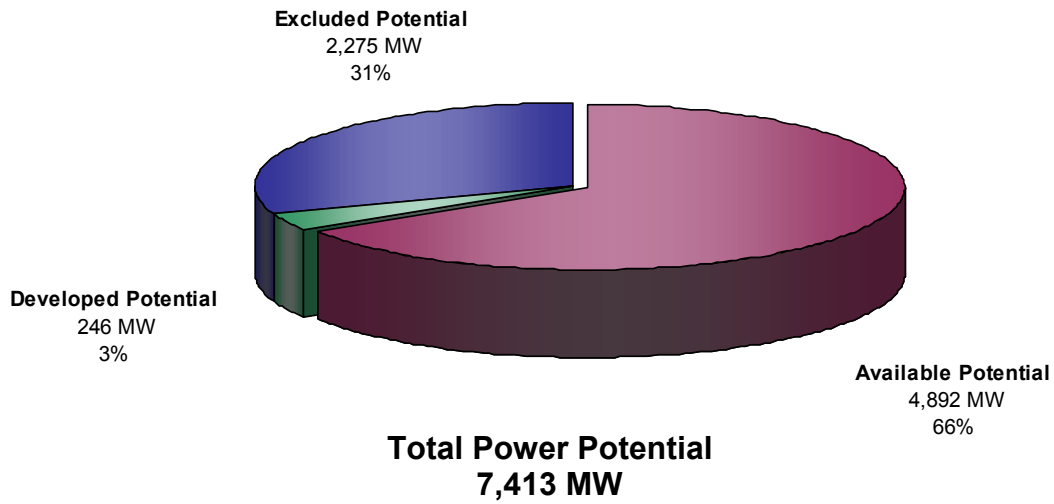Figure B-22. Power category distribution of the total power potential (annual mean power) of water energy resources in California.

High Power
7,770 MW
75%

High Head/Low Power
1,919 MW
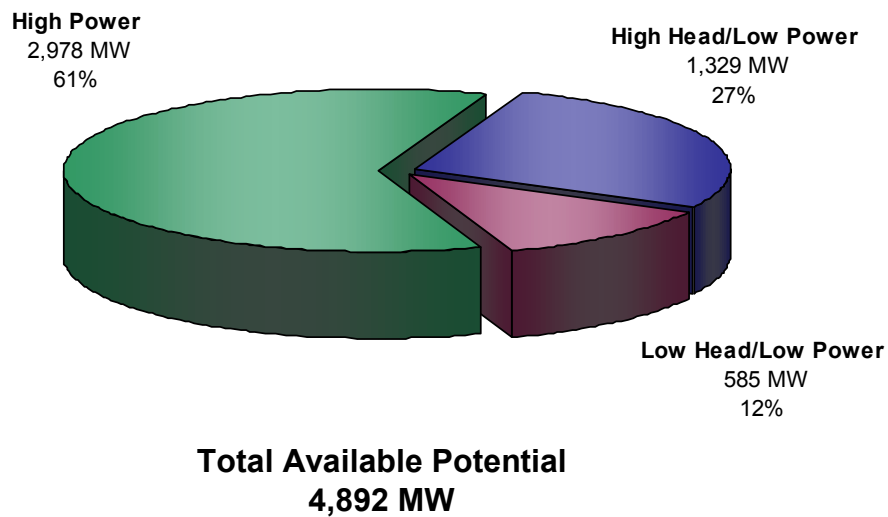19%

Low Head/Low Power
622 MW
6%

Total Available Potential
10,311 MW
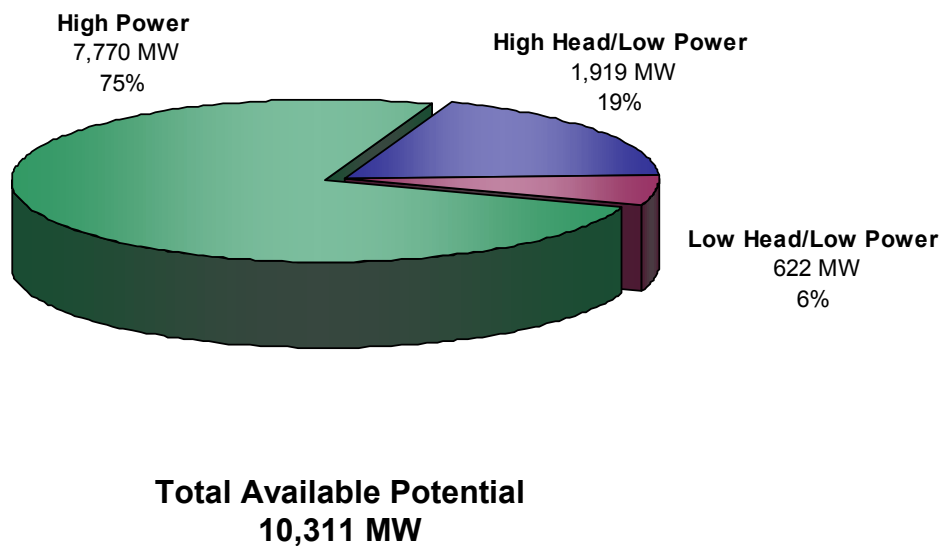
Figure B-23. Power class distribution of the available power potential (annual mean power) of water energy resources in California.

Microhydro Total
448 MW
Microhydro Developed & Excluded
96 MW

Microhydro Available
352 MW
(57% of total available)

Conventional Turbines Total
235 MW
Conventional Turbines Available
194 MW
(31% of total available)

Conventional Turbines Developed and Excluded
41 MW

Unconventional Systems Total
101 MW
Unconventional Systems Available
76 MW
(12% of total available)

Unconventional Systems Developed & Excluded
25 MW

Low Head/Low Power Totals
Total Potential:	**784 MW**
Developed Potential:	**9 MW**
Excluded Potential:	**153 MW**
Available Potential:	**622 MW**

Figure B-24. Distribution of the low head/low power power potential (annual mean power) of water energy resources in California among three low head/low power hydropower technology classes.

Figure B-25. Low head/low power and high head/low power water energy sites, and existing hydroelectric plants in California.

B.6 Colorado
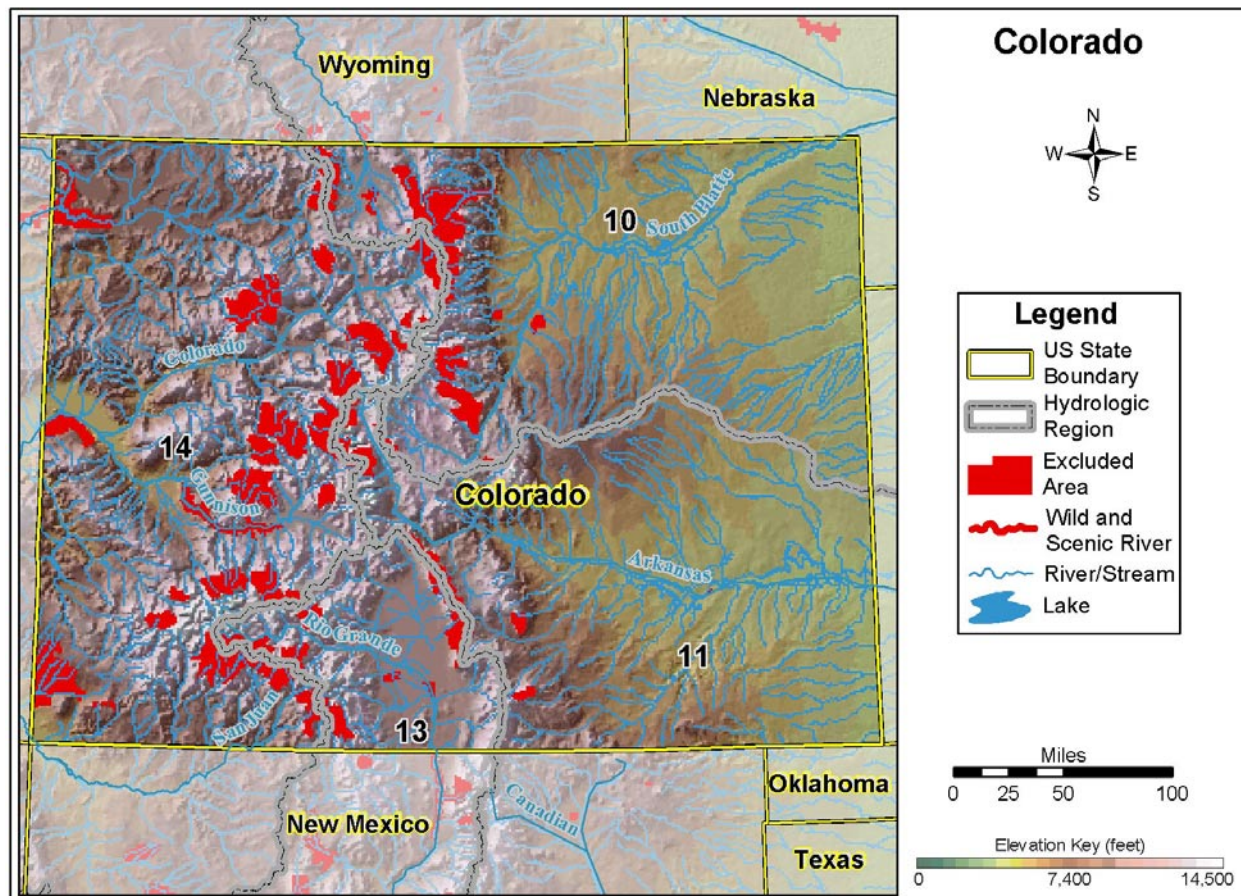
Figure B-26. Colorado.

Table B-6. Summary of results of water energy resource assessment of Colorado.

Annual Mean Power (MW)	Total	Developed	Excluded	Available[a]
TOTAL POWER	**7,413**	**246**	**2,275**	**4,892**
TOTAL HIGH POWER	**4,940**	**236**	**1,726**	**2,978**
High Head/High Power	4,411	236	1,664	2,511
Low Head/High Power	529	0	62	467
TOTAL LOW POWER	**2,473**	**10**	**549**	**1,914**
High Head/Low Power	1,844	10	505	1,329
Low Head/Low Power	629	0	44	585
Conventional Turbine	249	0	10	239
Unconventional Systems	65	0	6	59
Microhydro	315	0	28	287
a. No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.				

Figure B-27. Power category distribution of the total power potential (annual mean power) of water energy resources in Colorado.

Figure B-28. Power class distribution of the available power potential (annual mean power) of water energy resources in Colorado.
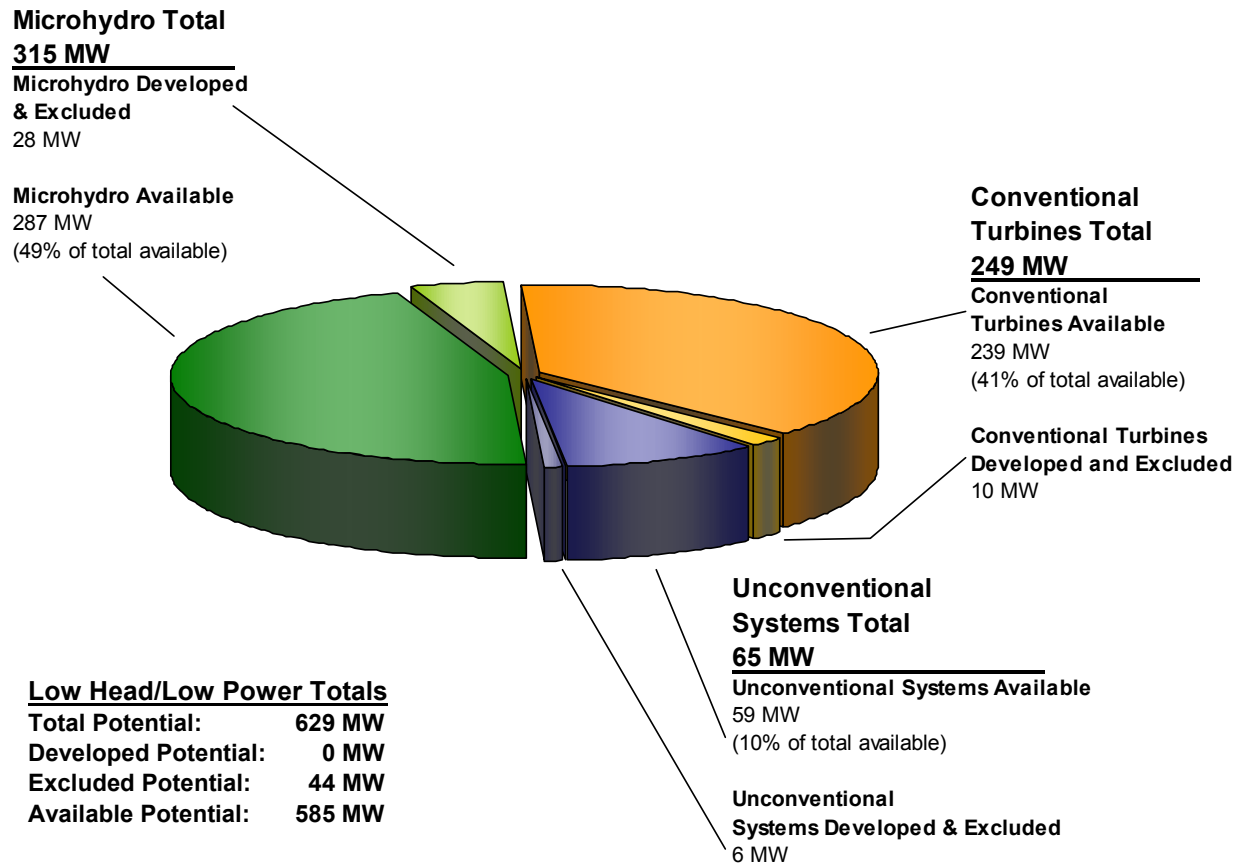
Microhydro Total
315 MW
Microhydro Developed
& Excluded
28 MW

Microhydro Available
287 MW
(49% of total available)

Conventional
Turbines Total
249 MW
Conventional
Turbines Available
239 MW
(41% of total available)

Conventional Turbines
Developed and Excluded
10 MW

Unconventional
Systems Total
65 MW
Unconventional Systems Available
59 MW
(10% of total available)

Unconventional
Systems Developed & Excluded
6 MW

Low Head/Low Power Totals

Total Potential:	**629 MW**
Developed Potential:	**0 MW**
Excluded Potential:	**44 MW**
Available Potential:	**585 MW**

Figure B-29. Distribution of the low head/low power power potential (annual mean power) of water energy resources in Colorado among three low head/low power hydropower technology classes.
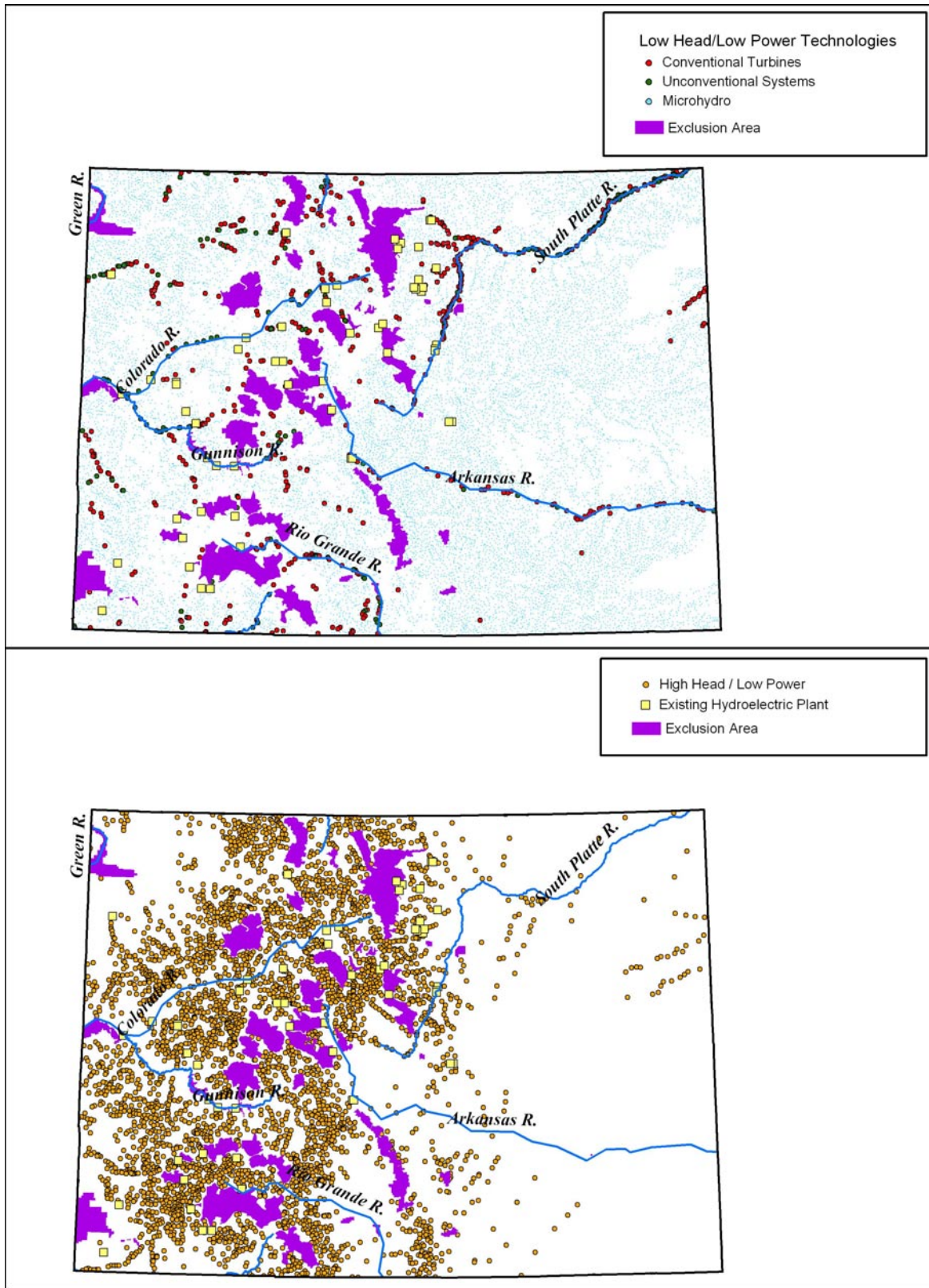
Figure B-30. Low head/low power and high head/low power water energy sites, and existing hydroelectric plants in Colorado.

B.7 Connecticut
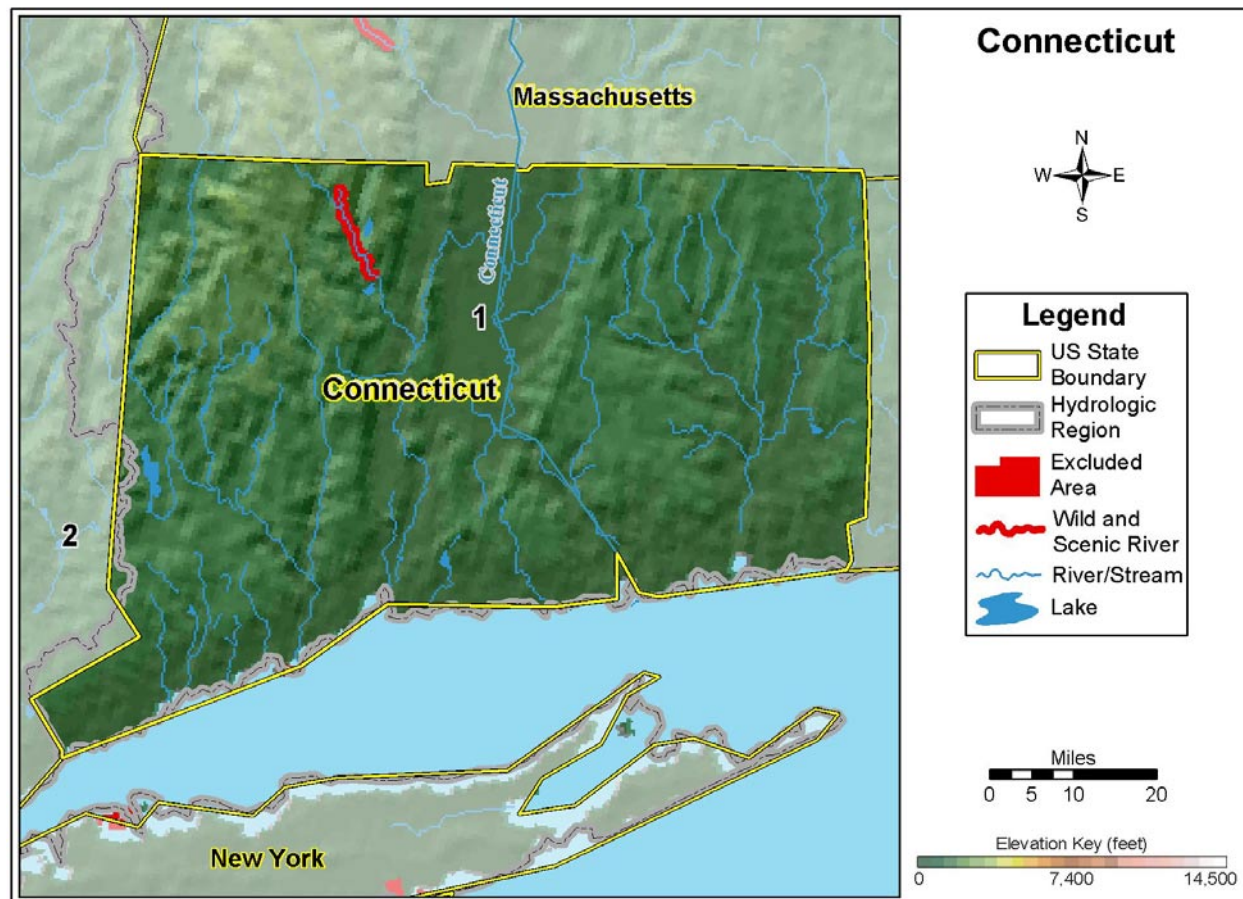
Figure B-31. Connecticut.

Table B-7. Summary of results of water energy resource assessment of Connecticut.

Annual Mean Power (MW)	Total	Developed	Excluded	Available[a]
TOTAL POWER	**432**	**55**	**18**	**359**
TOTAL HIGH POWER	**273**	**47**	**16**	**210**
High Head/High Power	148	42	15	91
Low Head/High Power	125	5	1	119
TOTAL LOW POWER	**159**	**8**	**2**	**149**
High Head/Low Power	105	2	2	101
Low Head/Low Power	54	6	0	48
Conventional Turbine	18	6	0	12
Unconventional Systems	11	0	0	11
Microhydro	25	0	0	25

a. No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.

Total Power Potential
432 MW
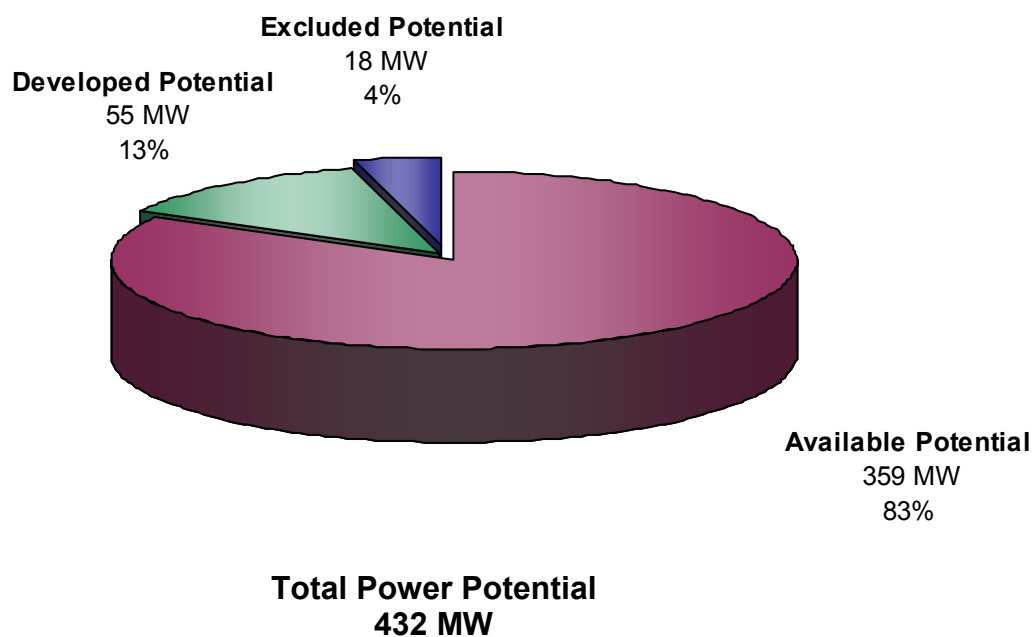
Figure B-32. Power category distribution of the total power potential (annual mean power) of water energy resources in Connecticut.

Total Available Potential
359 MW
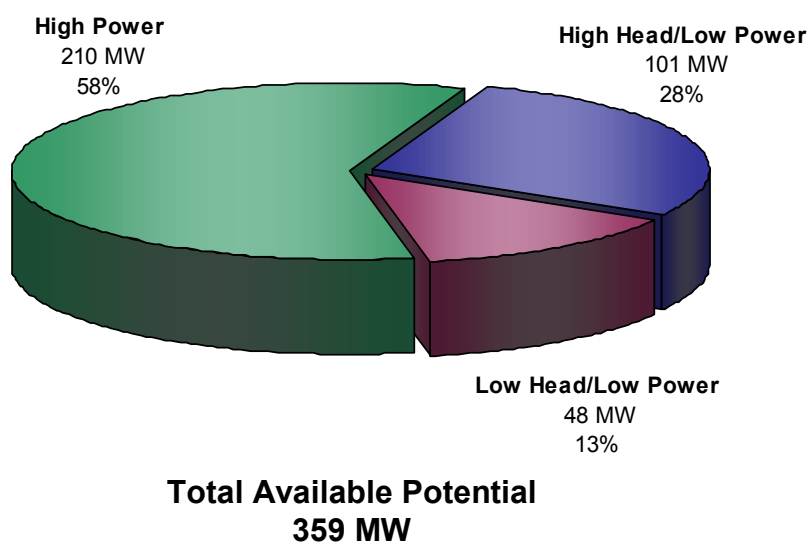
Figure B-33. Power class distribution of the available power potential (annual mean power) of water energy resources in Connecticut.

Microhydro Total
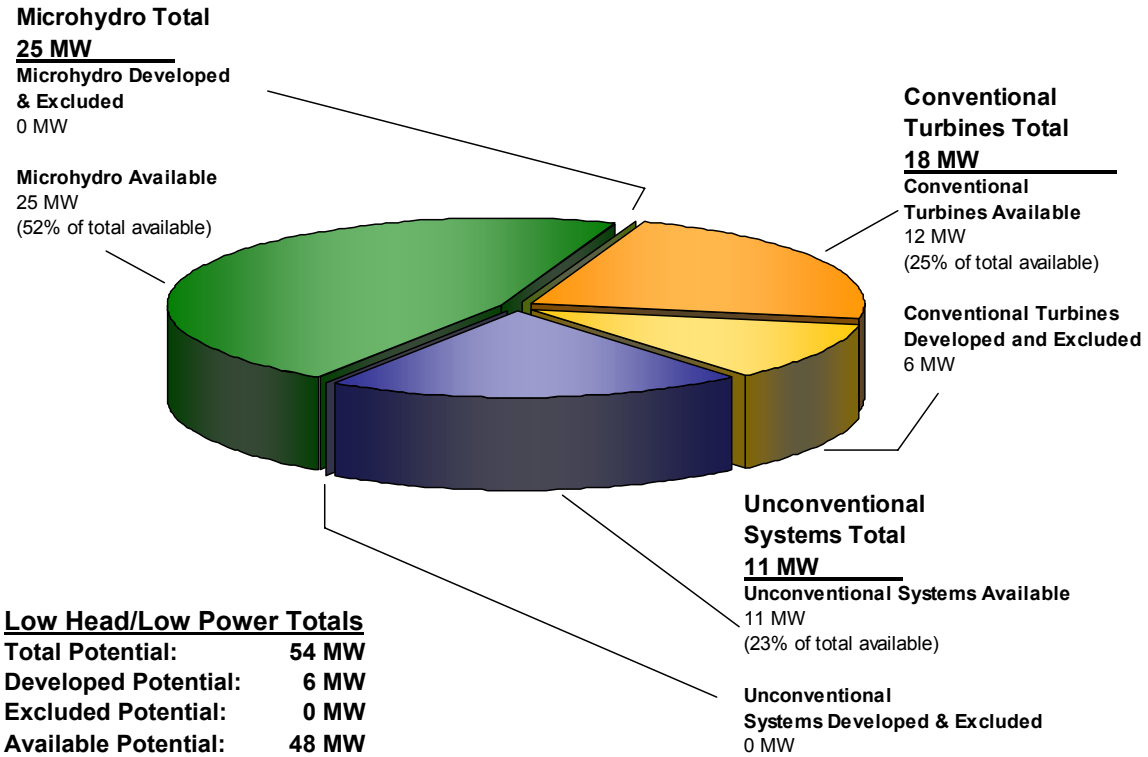**25 MW**
Microhydro Developed & Excluded
0 MW

Microhydro Available
25 MW
(52% of total available)

Conventional Turbines Total
18 MW
Conventional Turbines Available
12 MW
(25% of total available)

Conventional Turbines Developed and Excluded
6 MW

Unconventional Systems Total
11 MW
Unconventional Systems Available
11 MW
(23% of total available)

Unconventional Systems Developed & Excluded
0 MW

Low Head/Low Power Totals
Total Potential:	**54 MW**
Developed Potential:	**6 MW**
Excluded Potential:	**0 MW**
Available Potential:	**48 MW**

Figure B-34. Distribution of the low head/low power power potential (annual mean power) of water energy resources in Connecticut among three low head/low power hydropower technology classes.
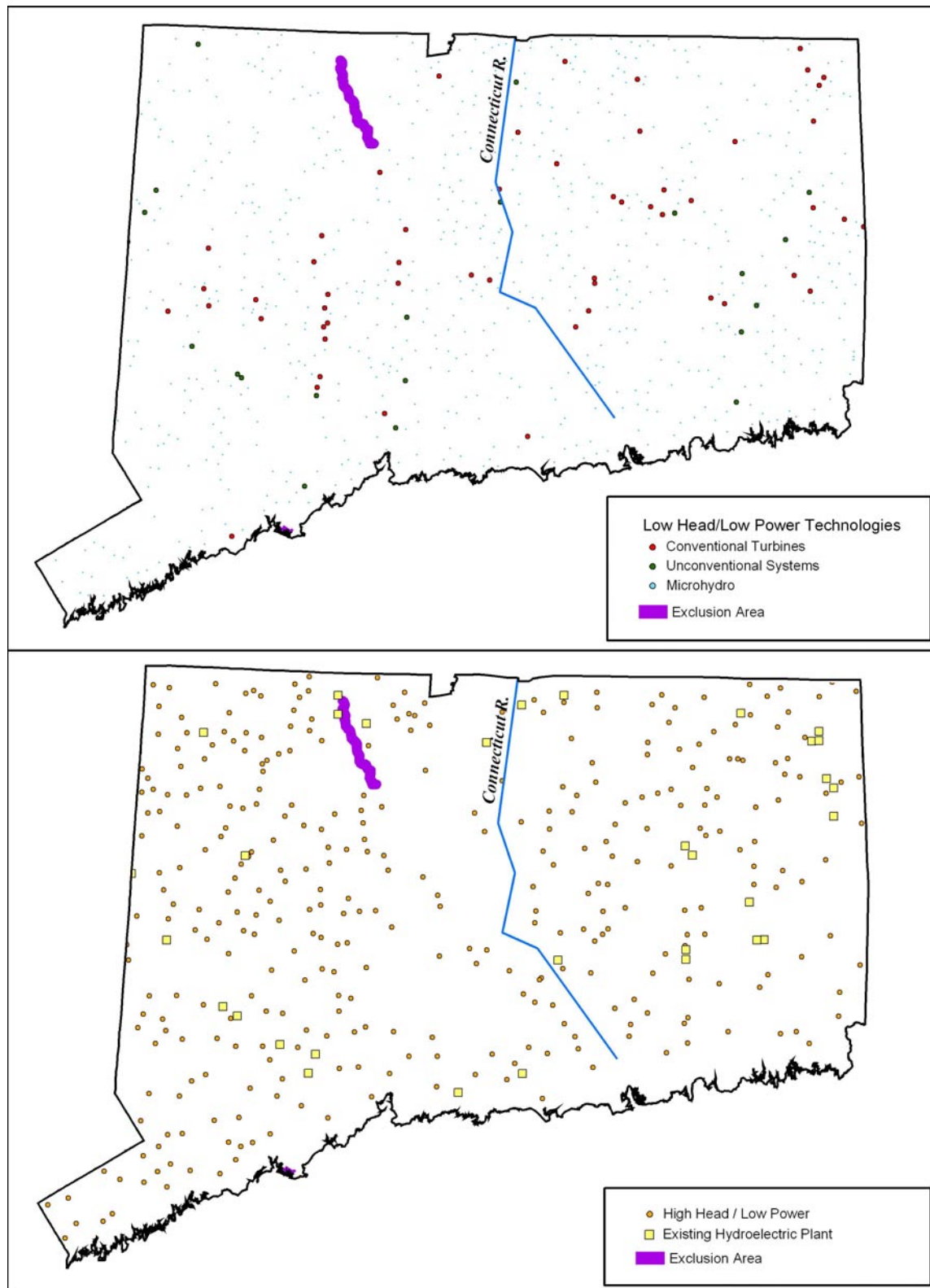
Figure B-35. Low head/low power and high head/low power water energy sites, and existing hydroelectric plants in Connecticut.

B.8   Delaware
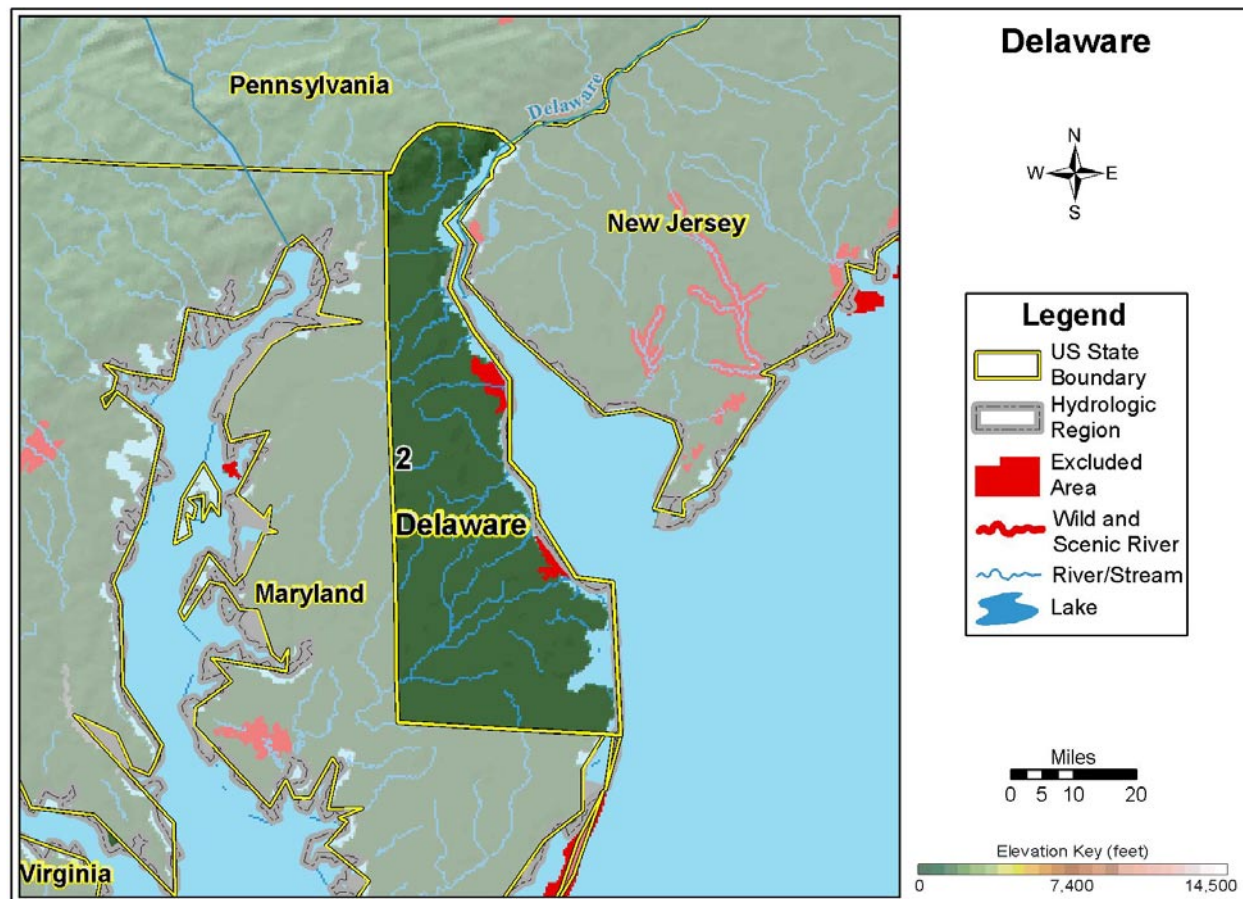
Figure B-36. Delaware.

Table B-8. Summary of results of water energy resource assessment of Delaware.

Annual Mean Power (MW)	Total	Developed	Excluded	Available[a]
TOTAL POWER	**24**	**0**	**0**	**24**
TOTAL HIGH POWER	**15**	**0**	**0**	**15**
High Head/High Power	5	0	0	5
Low Head/High Power	10	0	0	10
TOTAL LOW POWER	**9**	**0**	**0**	**9**
High Head/Low Power	2	0	0	2
Low Head/Low Power	7	0	0	7
Conventional Turbine	1	0	0	1
Unconventional Systems	2	0	0	2
Microhydro	4	0	0	4
a. No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.				

Developed Potential
0 MW
0%

Excluded Potential
0 MW
0%

Available Potential
24 MW
100%

Total Power Potential
24 MW
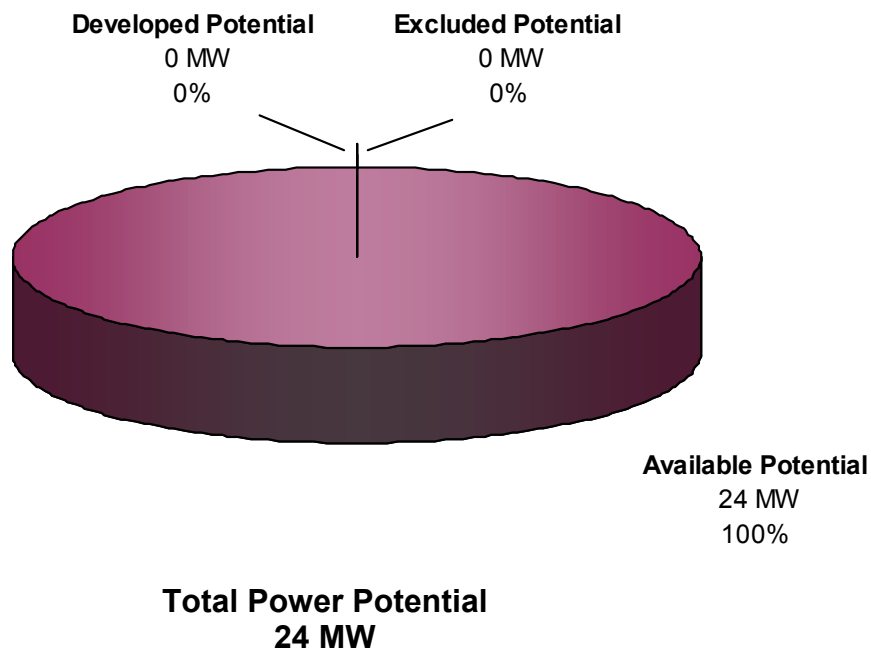
Figure B-37. Power category distribution of the total power potential (annual mean power) of water energy resources in Delaware.
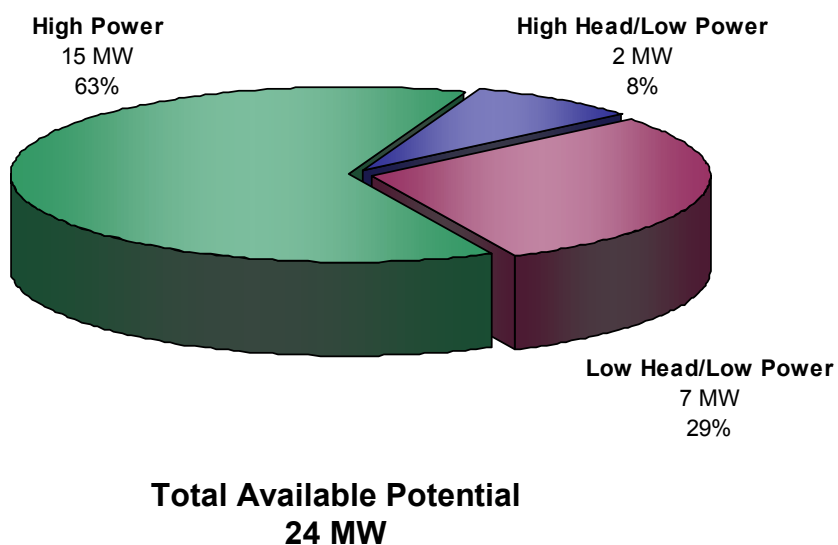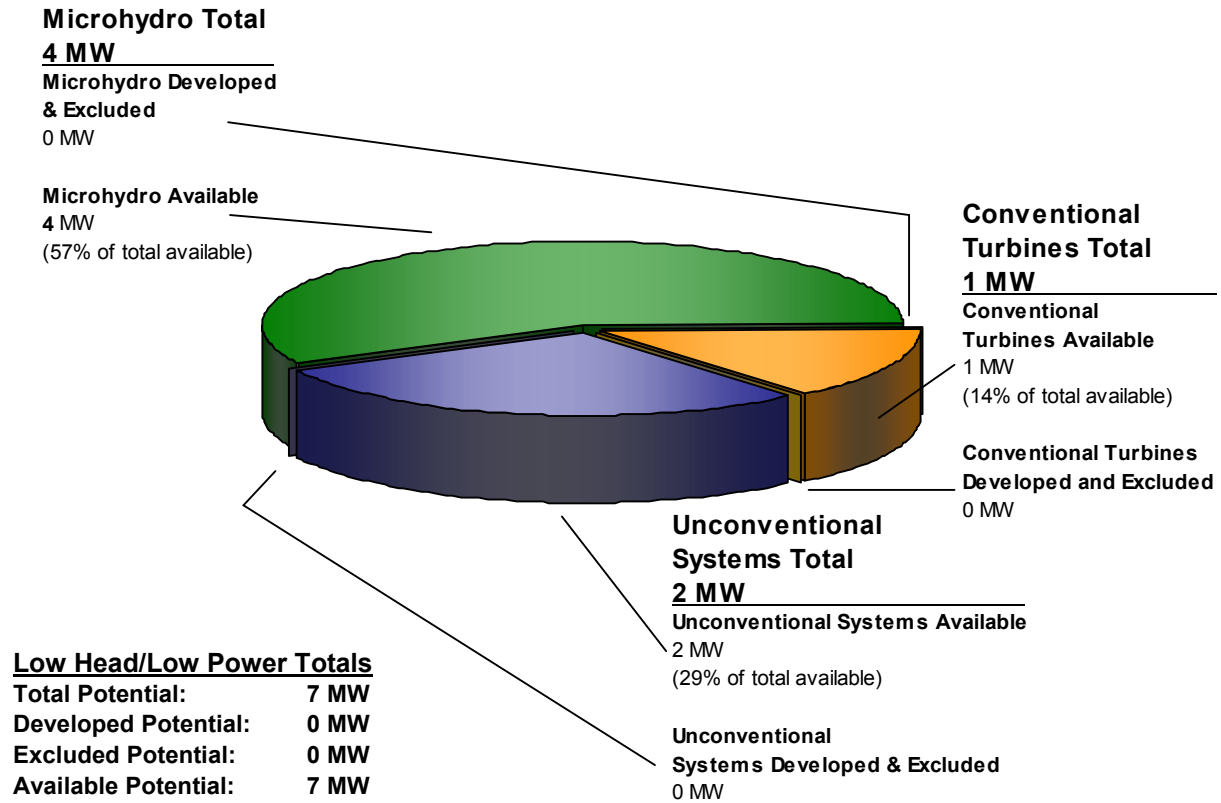
High Power
15 MW
63%

High Head/Low Power
2 MW
8%

Low Head/Low Power
7 MW
29%

Total Available Potential
24 MW

Figure B-38. Power class distribution of the available power potential (annual mean power) of water energy resources in Delaware.

Microhydro Total
4 MW
Microhydro Developed
& Excluded
0 MW

Microhydro Available
4 MW
(57% of total available)

Conventional
Turbines Total
1 MW
Conventional
Turbines Available
1 MW
(14% of total available)

Conventional Turbines
Developed and Excluded
0 MW

Unconventional
Systems Total
2 MW
Unconventional Systems Available
2 MW
(29% of total available)

Low Head/Low Power Totals

Total Potential:	**7 MW**
Developed Potential:	**0 MW**
Excluded Potential:	**0 MW**
Available Potential:	**7 MW**

Unconventional
Systems Developed & Excluded
0 MW

Figure B-39. Distribution of the low head/low power power potential (annual mean power) of water energy resources in Delaware among three low head/low power hydropower technology classes.
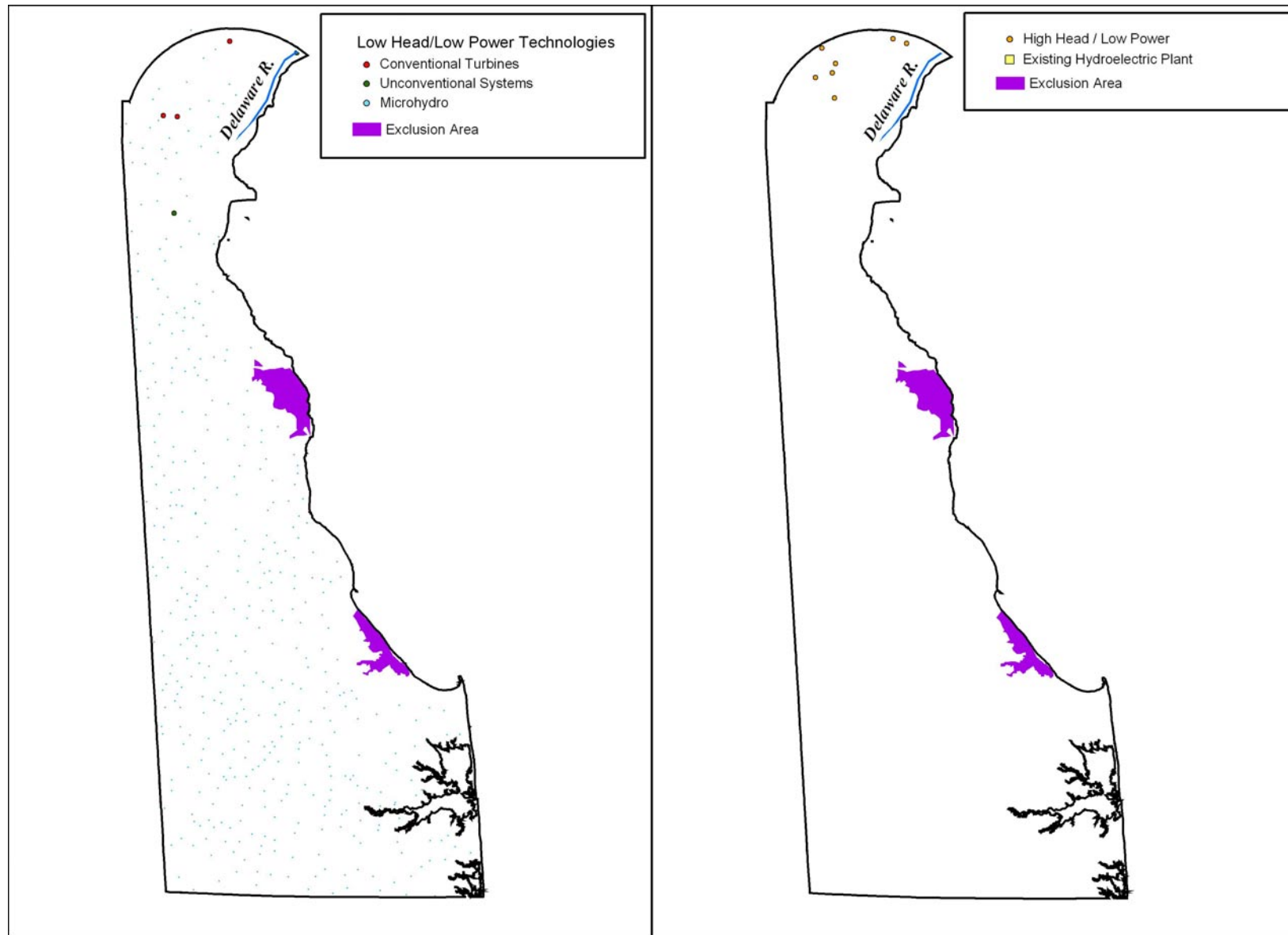
Figure B-40. Low head/low power and high head/low power water energy sites, and existing hydroelectric plants in Delaware.

B.9 Florida
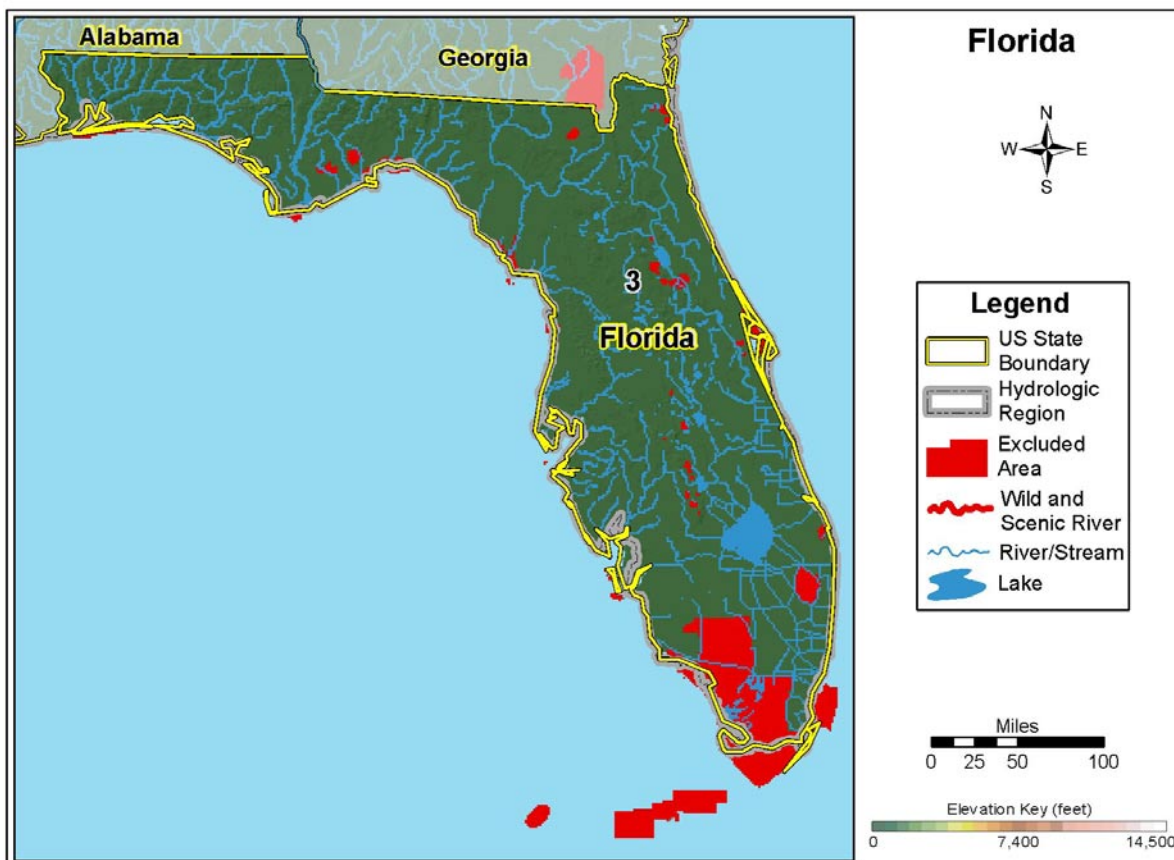
Figure B-41. Florida.

Table B-9. Summary of results of water energy resource assessment of Florida.

Annual Mean Power (MW)	Total	Developed[a]	Excluded	Available[a,b]
TOTAL POWER	**446**	**32**	**14**	**400**
TOTAL HIGH POWER	**214**	**32**	**6**	**176**
High Head/High Power	24	24	0	0
Low Head/High Power	190	8	6	176
TOTAL LOW POWER	**232**	**0**	**8**	**224**
High Head/Low Power	13	0	0	13
Low Head/Low Power	219	0	8	211
Conventional Turbine	43	0	2	41
Unconventional Systems	74	0	4	70
Microhydro	102	0	2	100

b. Developed high head/high power potential exceeded total potential in this power class probably because the developed power is made up of resources in other power classes. "Excess" developed power in the high head/high power power class (8 MW) was rolled downward into the low head/high power power class.

a. No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.
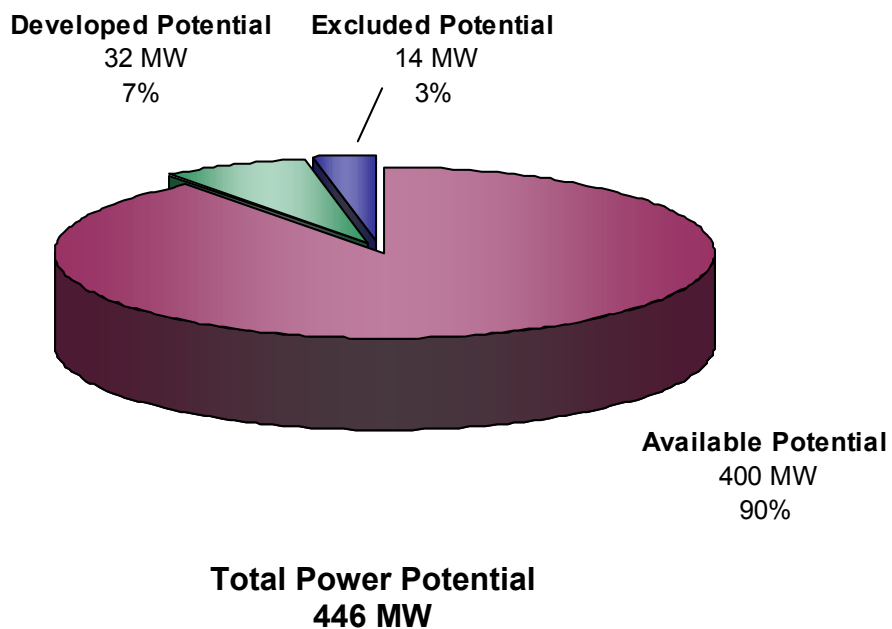
Developed Potential
32 MW
7%

Excluded Potential
14 MW
3%

Available Potential
400 MW
90%

Total Power Potential
446 MW

Figure B-42. Power category distribution of the total power potential (annual mean power) of water energy resources in Florida.
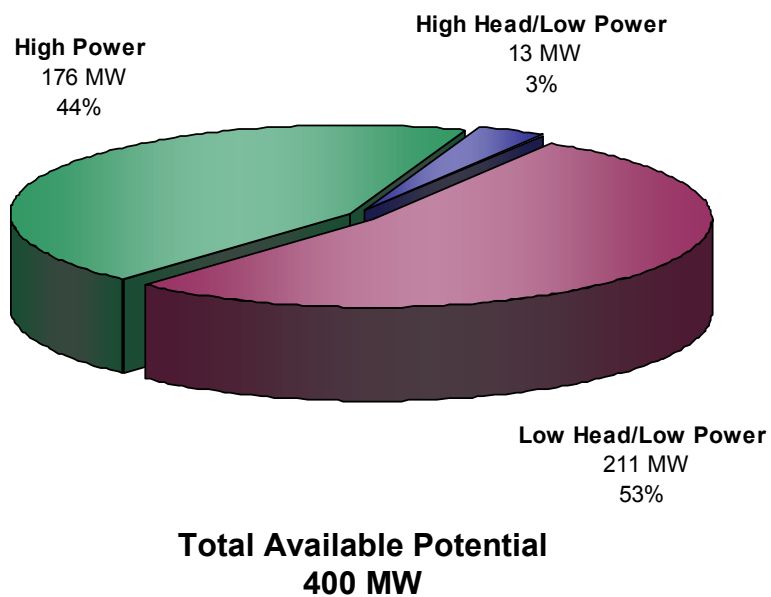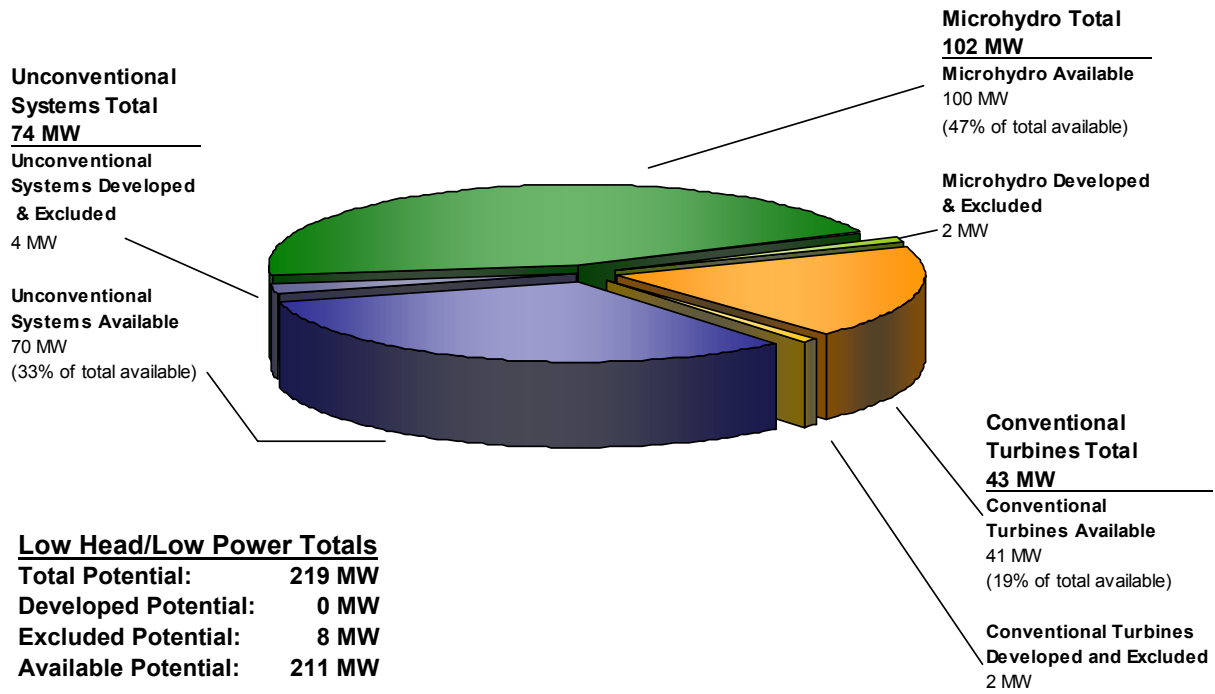
High Power
176 MW
44%
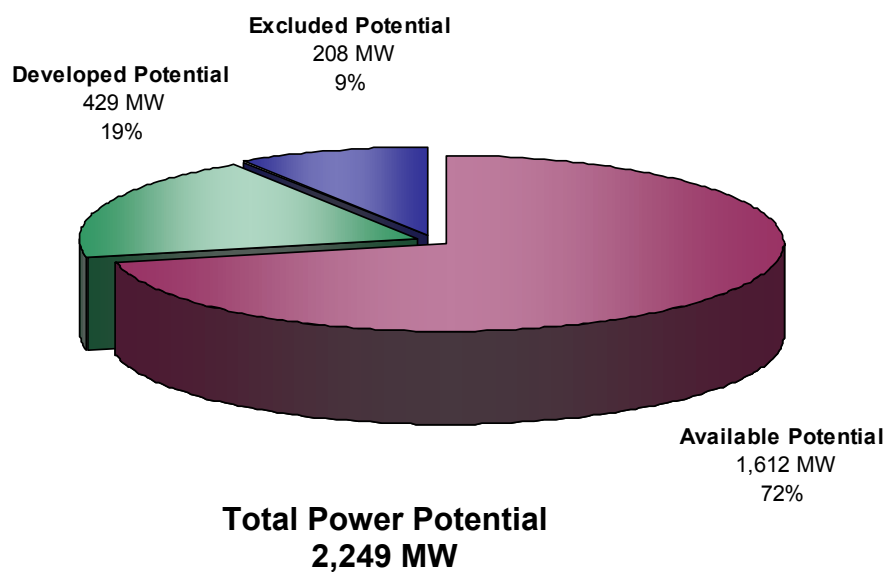
High Head/Low Power
13 MW
3%

Low Head/Low Power
211 MW
53%

Total Available Potential
400 MW

Figure B-43. Power class distribution of the available power potential (annual mean power) of water energy resources in Florida.

Microhydro Total
102 MW
Microhydro Available
100 MW
(47% of total available)

Microhydro Developed
& Excluded
2 MW

Unconventional
Systems Total
74 MW
Unconventional
Systems Developed
& Excluded
4 MW

Unconventional
Systems Available
70 MW
(33% of total available)

Conventional
Turbines Total
43 MW
Conventional
Turbines Available
41 MW
(19% of total available)

Conventional Turbines
Developed and Excluded
2 MW

Low Head/Low Power Totals
Total Potential:	**219 MW**
Developed Potential:	**0 MW**
Excluded Potential:	**8 MW**
Available Potential:	**211 MW**

Figure B-44. Distribution of the low head/low power power potential (annual mean power) of water energy resources in Florida among three low head/low power hydropower technology classes.
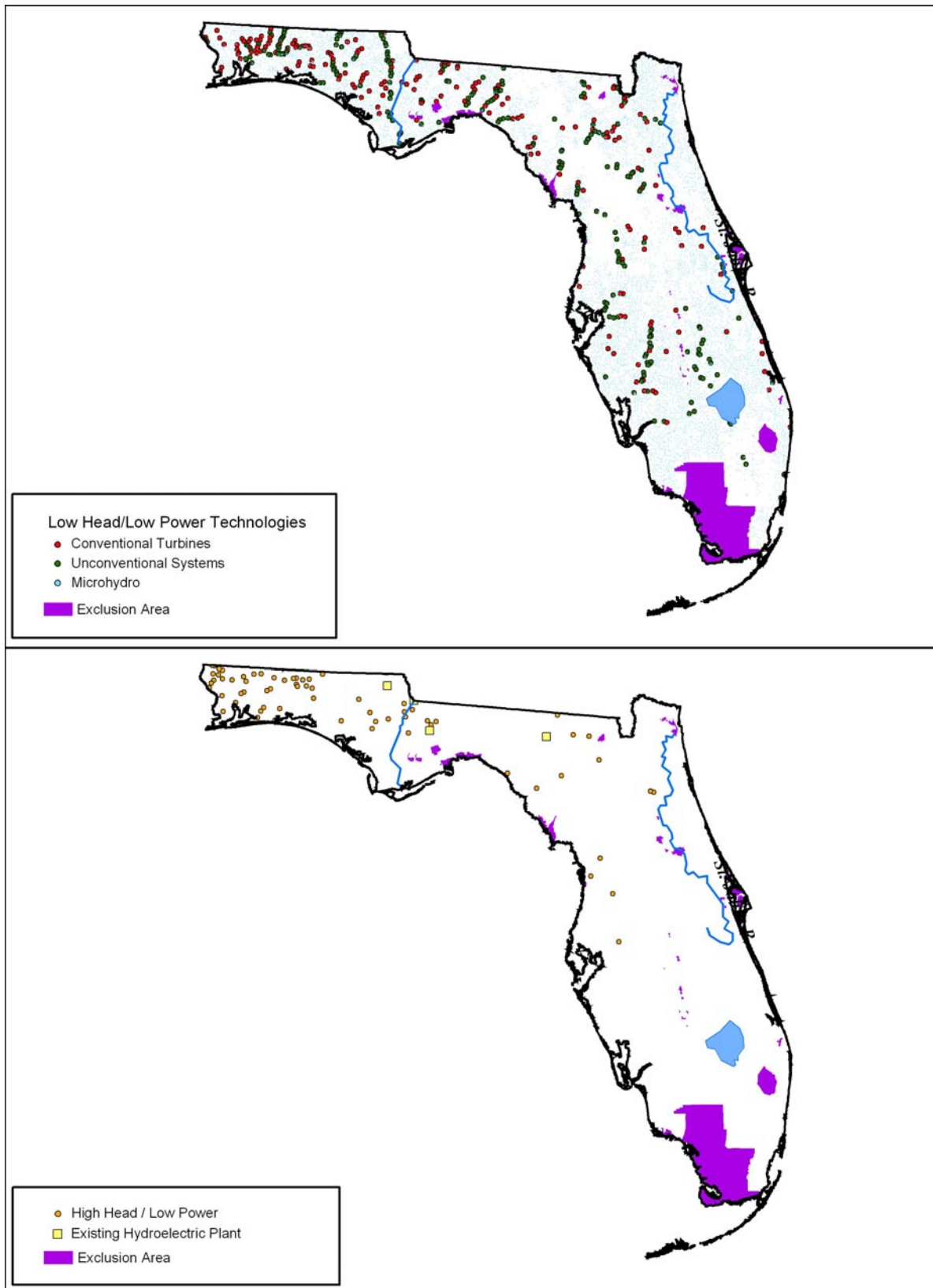
Figure B-45. Low head/low power and high head/low power water energy sites, and existing hydroelectric plants in Florida.

B.10 Georgia
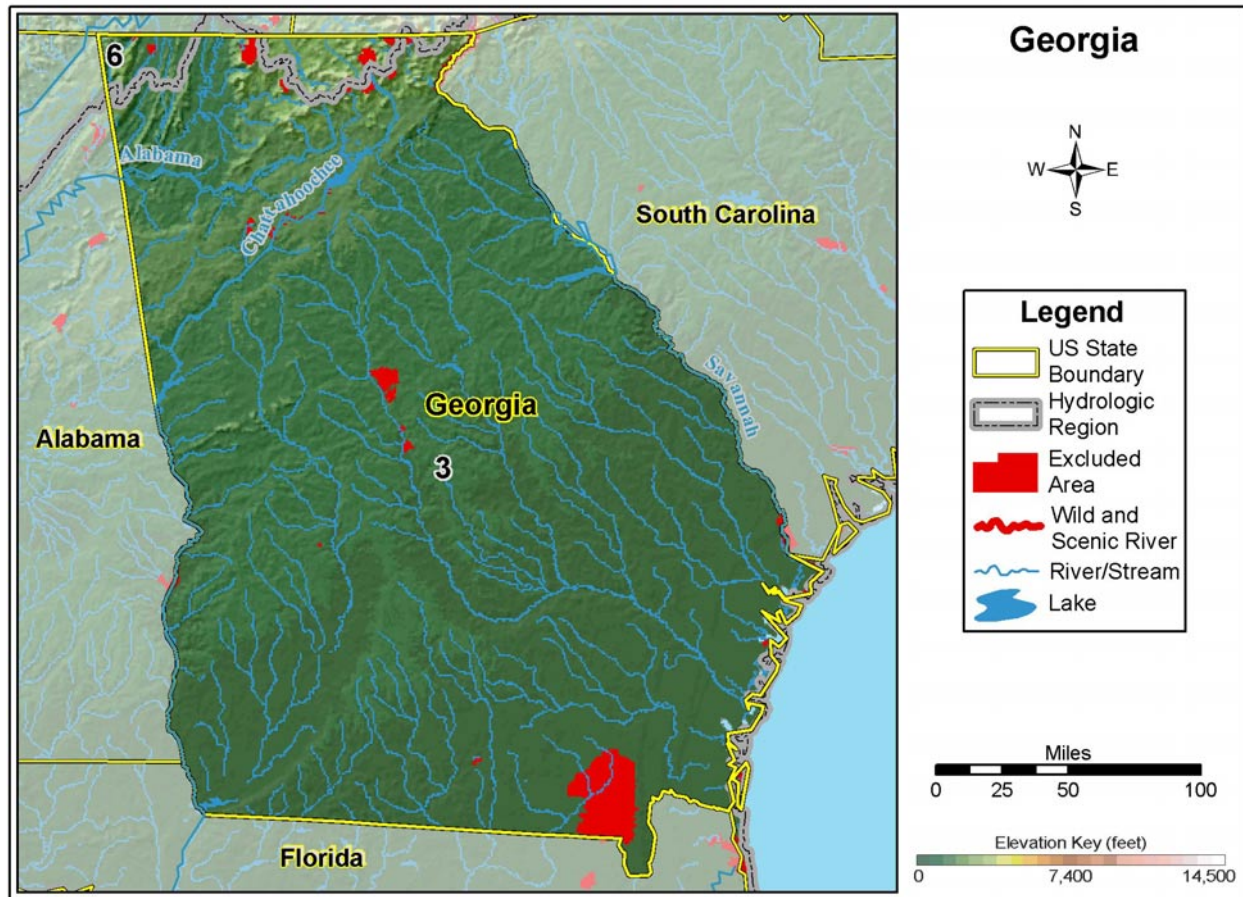
Figure B-46. Georgia.

Table B-10. Summary of results of water energy resource assessment of Georgia.

Annual Mean Power (MW)	Total	Developed	Excluded	Available[a]
TOTAL POWER	**2,249**	**429**	**208**	**1,612**
TOTAL HIGH POWER	**1,436**	**424**	**181**	**831**
High Head/High Power	804	403	161	240
Low Head/High Power	632	21	20	591
TOTAL LOW POWER	**813**	**5**	**27**	**781**
High Head/Low Power	250	3	18	229
Low Head/Low Power	563	2	9	552
Conventional Turbine	191	2	3	186
Unconventional Systems	126	0	3	123
Microhydro	246	0	3	243
a. No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.				

B-43

Excluded Potential
208 MW
9%

Developed Potential
429 MW
19%

Available Potential
1,612 MW
72%

Total Power Potential
2,249 MW

Figure B-47. Power category distribution of the total power potential (annual mean power) of water energy resources in Georgia.
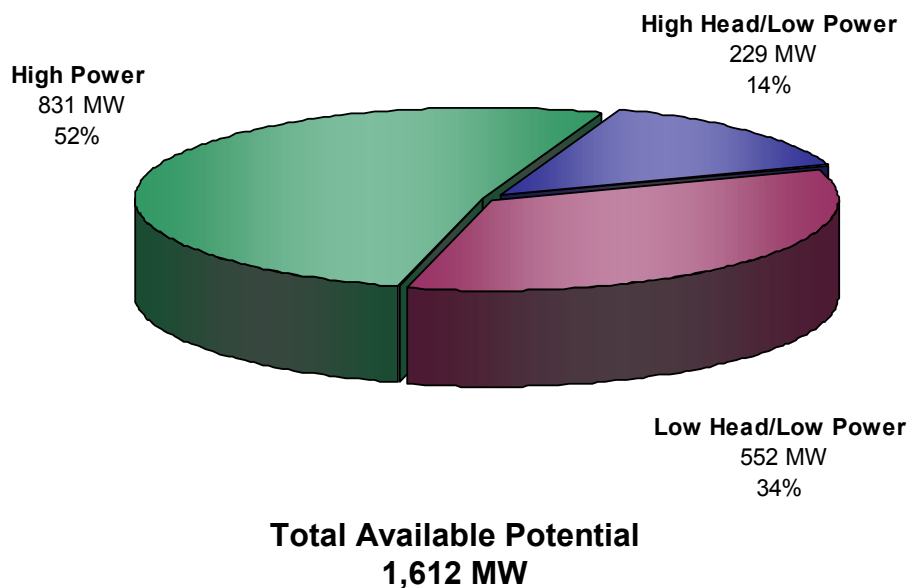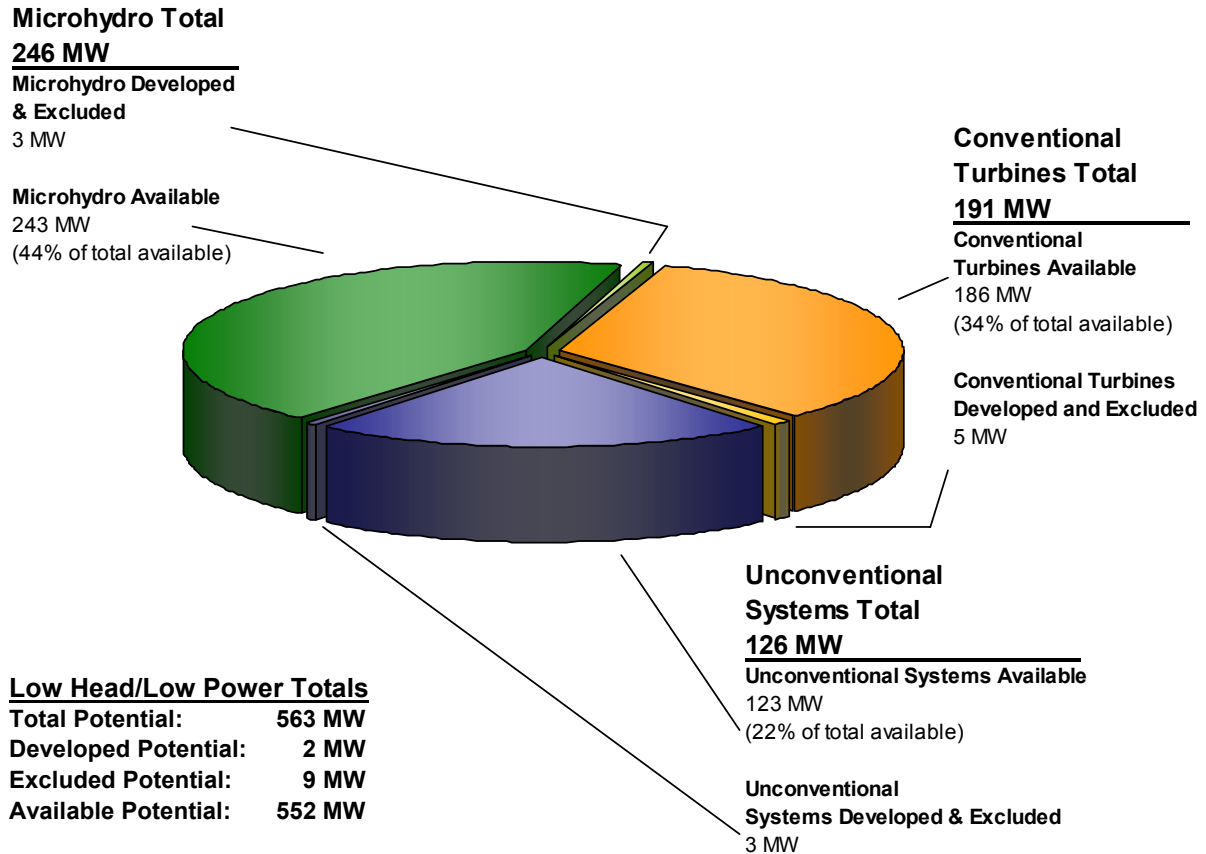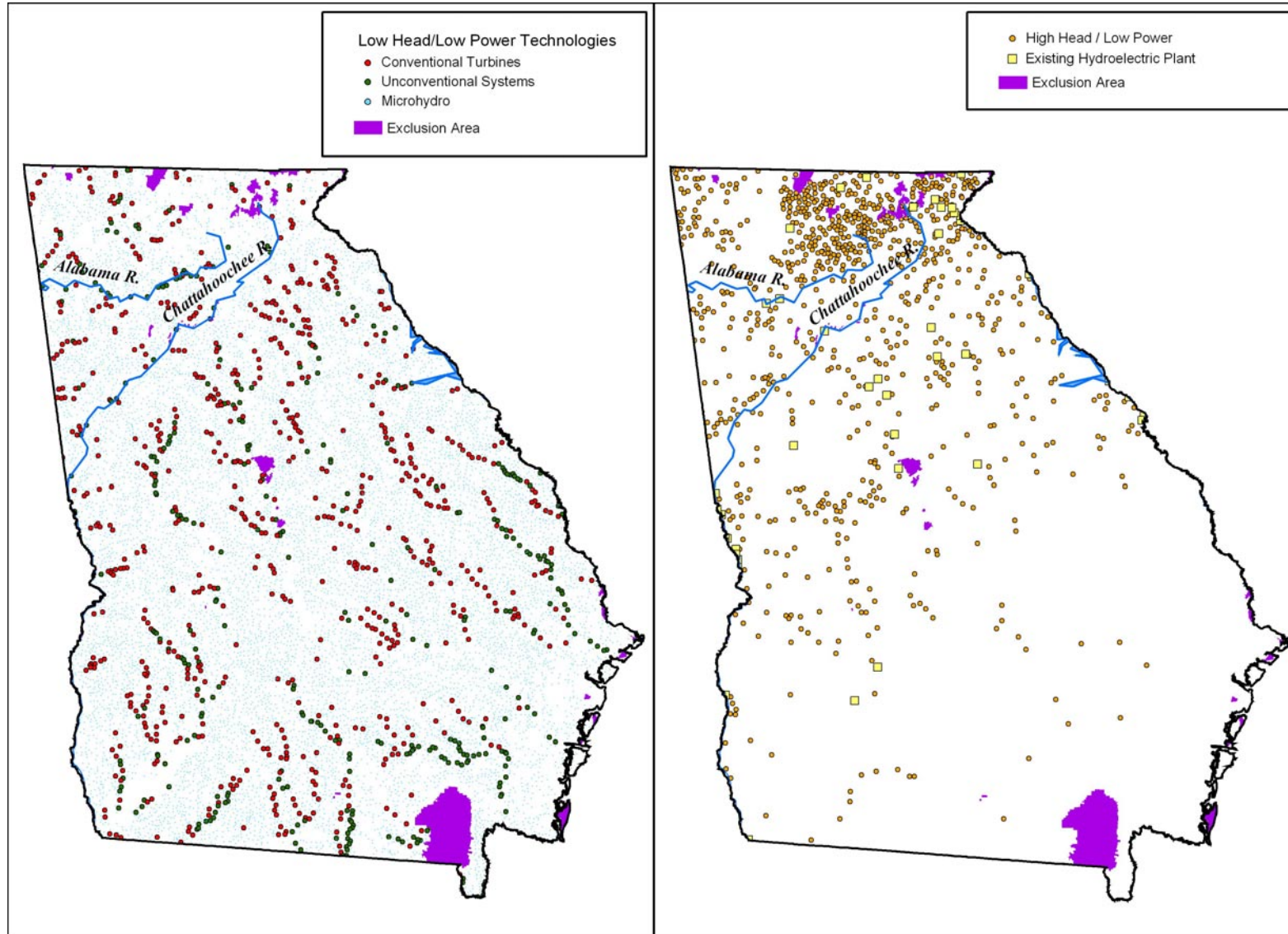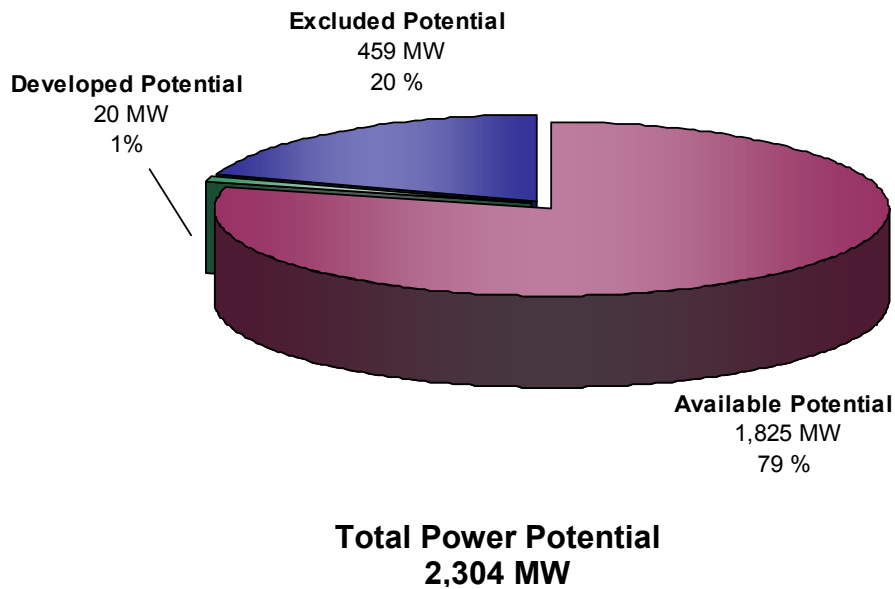
High Head/Low Power
229 MW
14%

High Power
831 MW
52%

Low Head/Low Power
552 MW
34%

Total Available Potential
1,612 MW

Figure B-48. Power class distribution of the available power potential (annual mean power) of water energy resources in Georgia.

Microhydro Total
246 MW
Microhydro Developed
& Excluded
3 MW

Microhydro Available
243 MW
(44% of total available)

Conventional
Turbines Total
191 MW
Conventional
Turbines Available
186 MW
(34% of total available)

Conventional Turbines
Developed and Excluded
5 MW

Unconventional
Systems Total
126 MW
Unconventional Systems Available
123 MW
(22% of total available)

Low Head/Low Power Totals
Total Potential:	**563 MW**
Developed Potential:	**2 MW**
Excluded Potential:	**9 MW**
Available Potential:	**552 MW**

Unconventional
Systems Developed & Excluded
3 MW
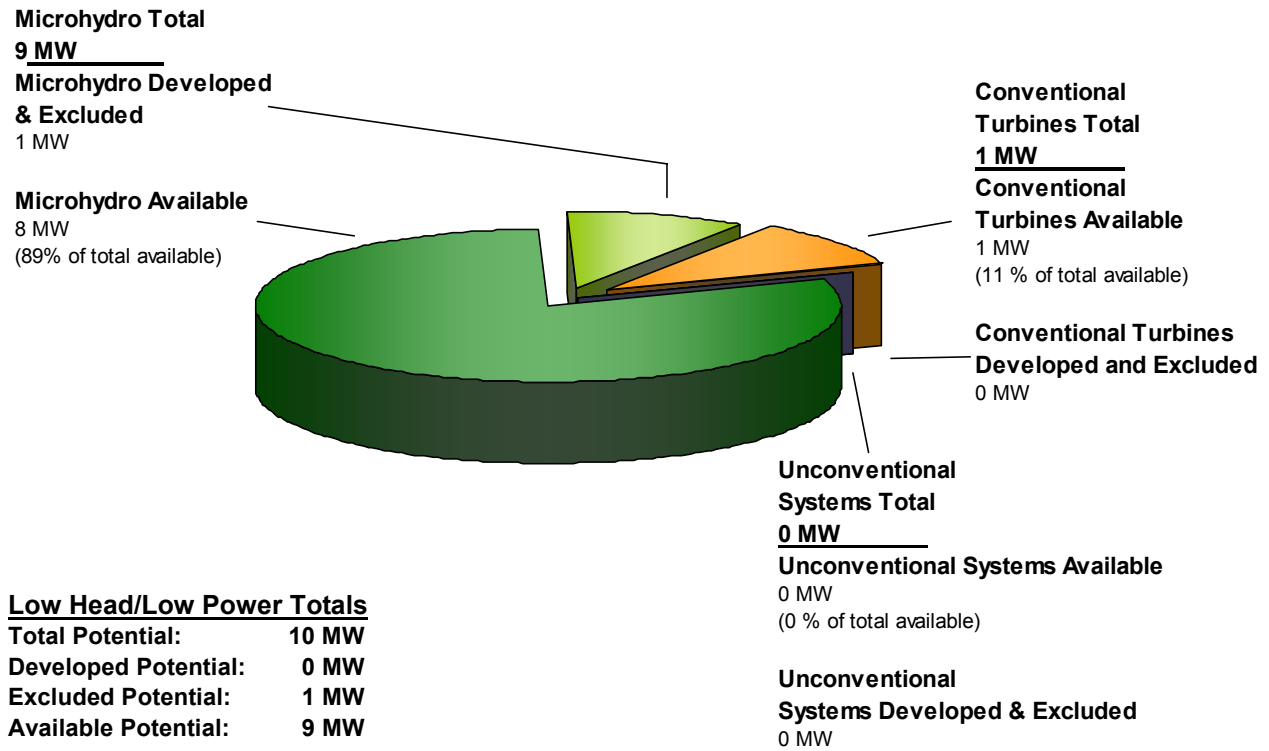
Figure B-49. Distribution of the low head/low power power potential (annual mean power) of water energy resources in Georgia among three low head/low power hydropower technology classes.
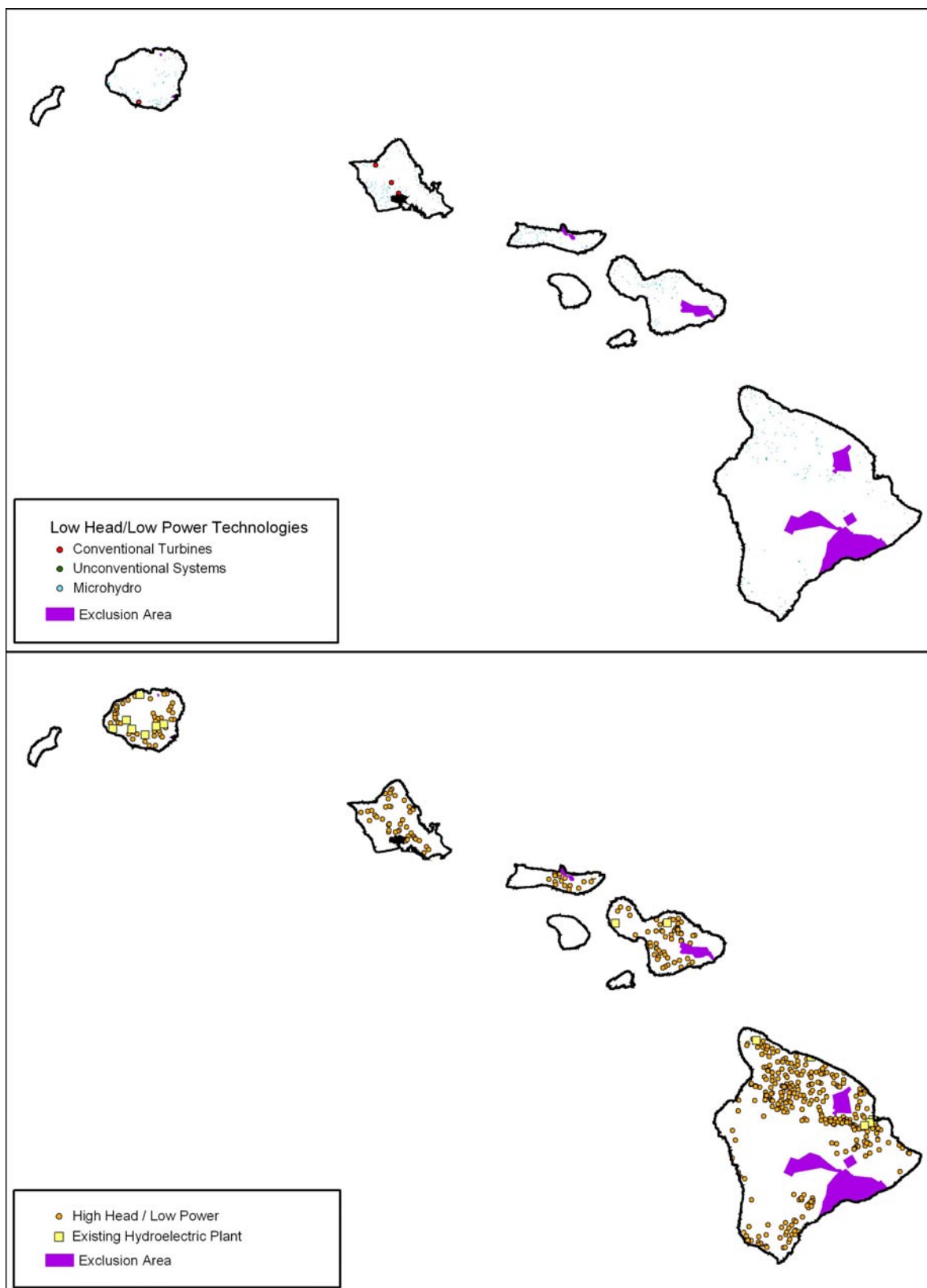
Figure B-50. Low head/low power and high head/low power water energy sites, and existing hydroelectric plants in Georgia.

B.11 Hawaii
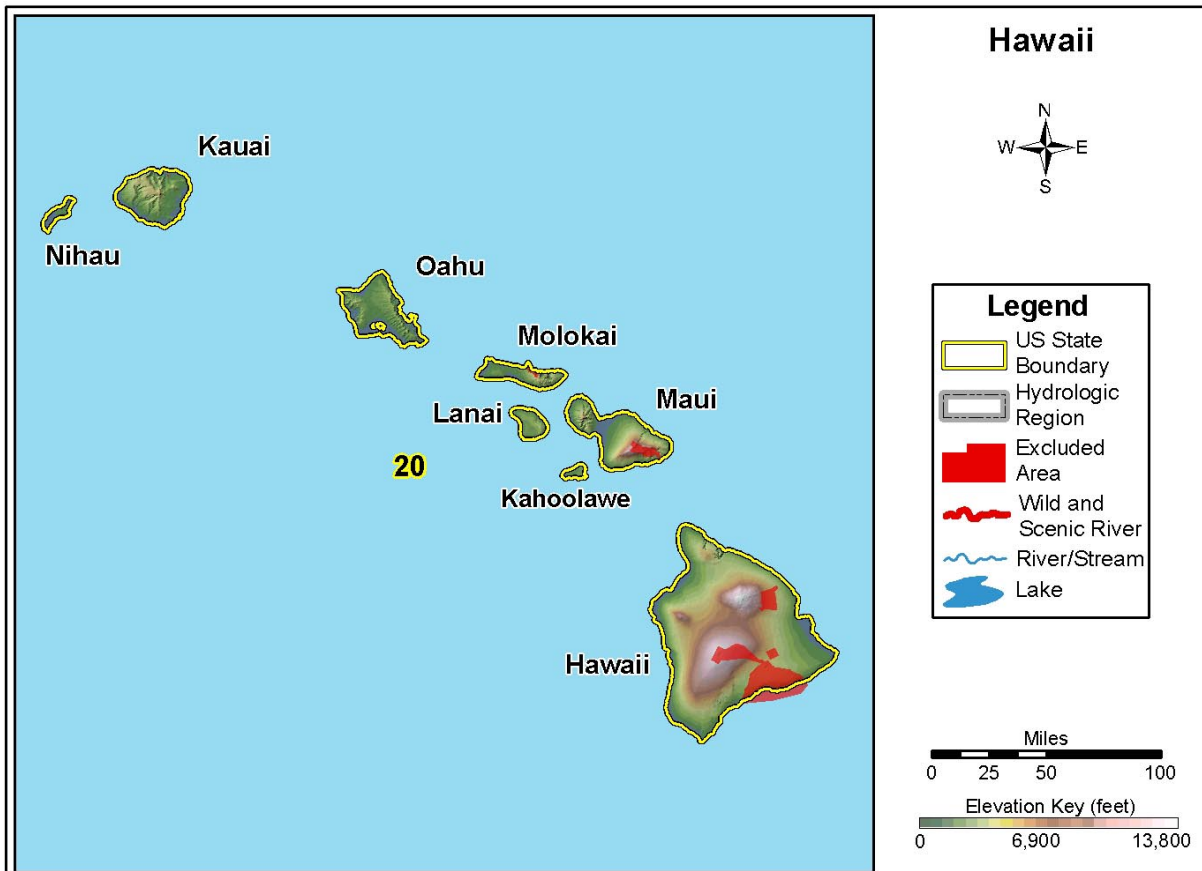
Figure B-51. Hawaii.

Table B-11. Summary of results of water energy resource assessment of Hawaii.

Annual Mean Power (MW)	Total	Developed	Excluded	Available[a]
TOTAL POWER	**2,304**	**20**	**459**	**1,825**
TOTAL HIGH POWER	**2,138**	**17**	**439**	**1,682**
High Head/High Power	**2,138**	**17**	**439**	**1,682**
Low Head/High Power	**0**	**0**	**0**	**0**
TOTAL LOW POWER	**166**	**3**	**20**	**143**
High Head/Low Power	**156**	**3**	**19**	**134**
Low Head/Low Power	**10**	**0**	**1**	**9**
Conventional Turbine	1	0	0	1
Unconventional Systems	0	0	0	0
Microhydro	9	0	1	8
a. No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.				

Excluded Potential
459 MW
20 %

Developed Potential
20 MW
1%

Available Potential
1,825 MW
79 %

Total Power Potential
2,304 MW

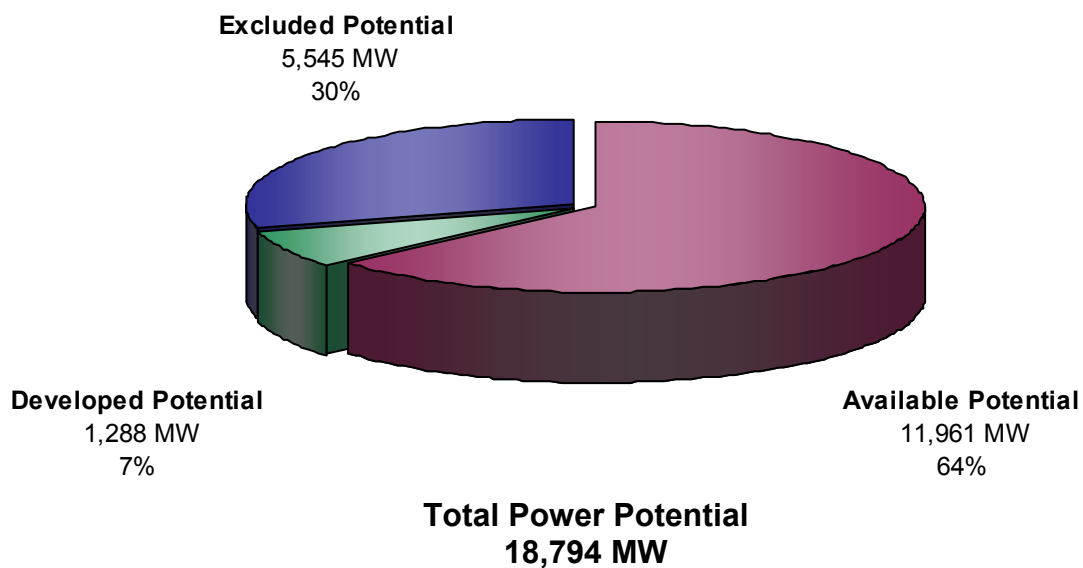Figure B-52. Power category distribution of the total power potential (annual mean power) of water energy resources in Hawaii.

High Head/Low Power
134 MW
7 %

High Power
1,682 MW
92 %

Low Head/Low Power
9 MW
0 %

Total Available Potential
1,825 MW
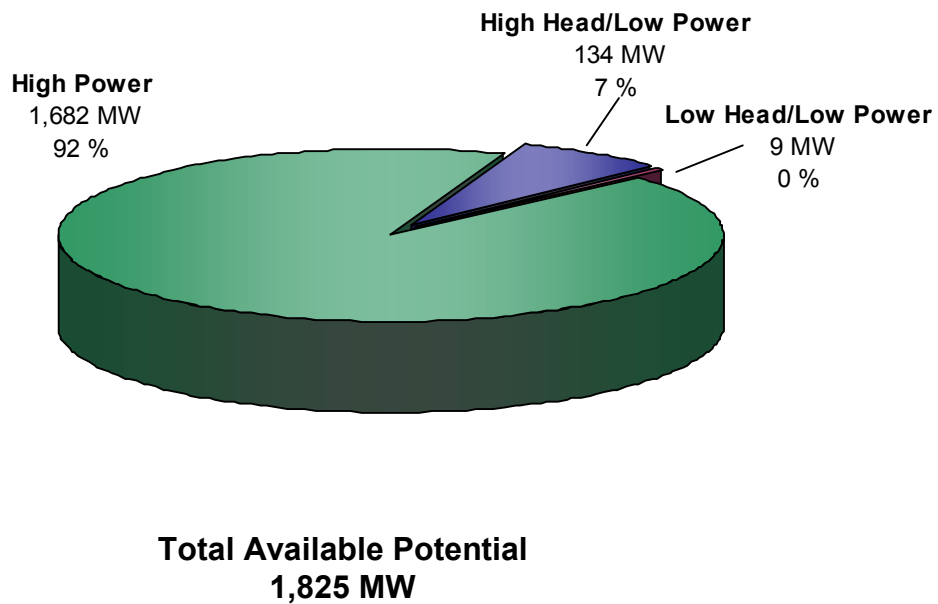
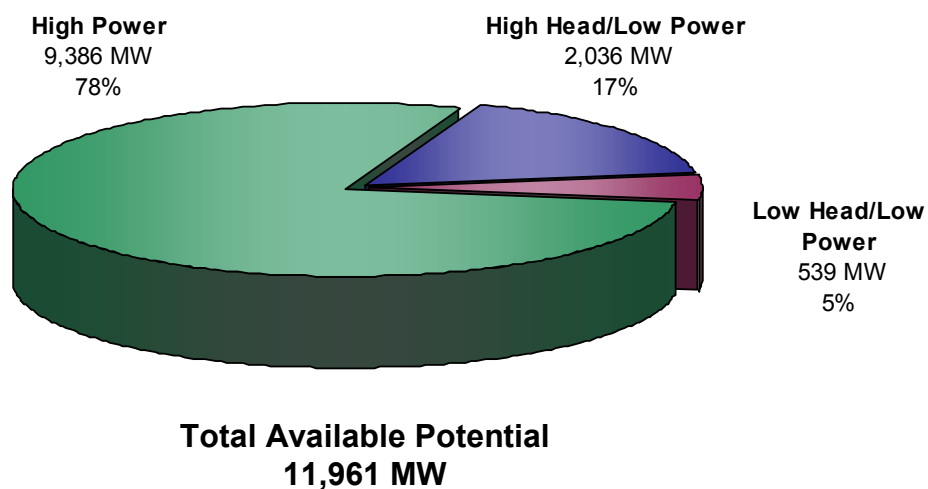Figure B-53. Power class distribution of the available power potential (annual mean power) of water energy resources in Hawaii.

Microhydro Total
9 MW
Microhydro Developed
& Excluded
1 MW

Microhydro Available
8 MW
(89% of total available)

Conventional
Turbines Total
1 MW
Conventional
Turbines Available
1 MW
(11 % of total available)

Conventional Turbines
Developed and Excluded
0 MW

Unconventional
Systems Total
0 MW
Unconventional Systems Available
0 MW
(0 % of total available)

Unconventional
Systems Developed & Excluded
0 MW

Low Head/Low Power Totals

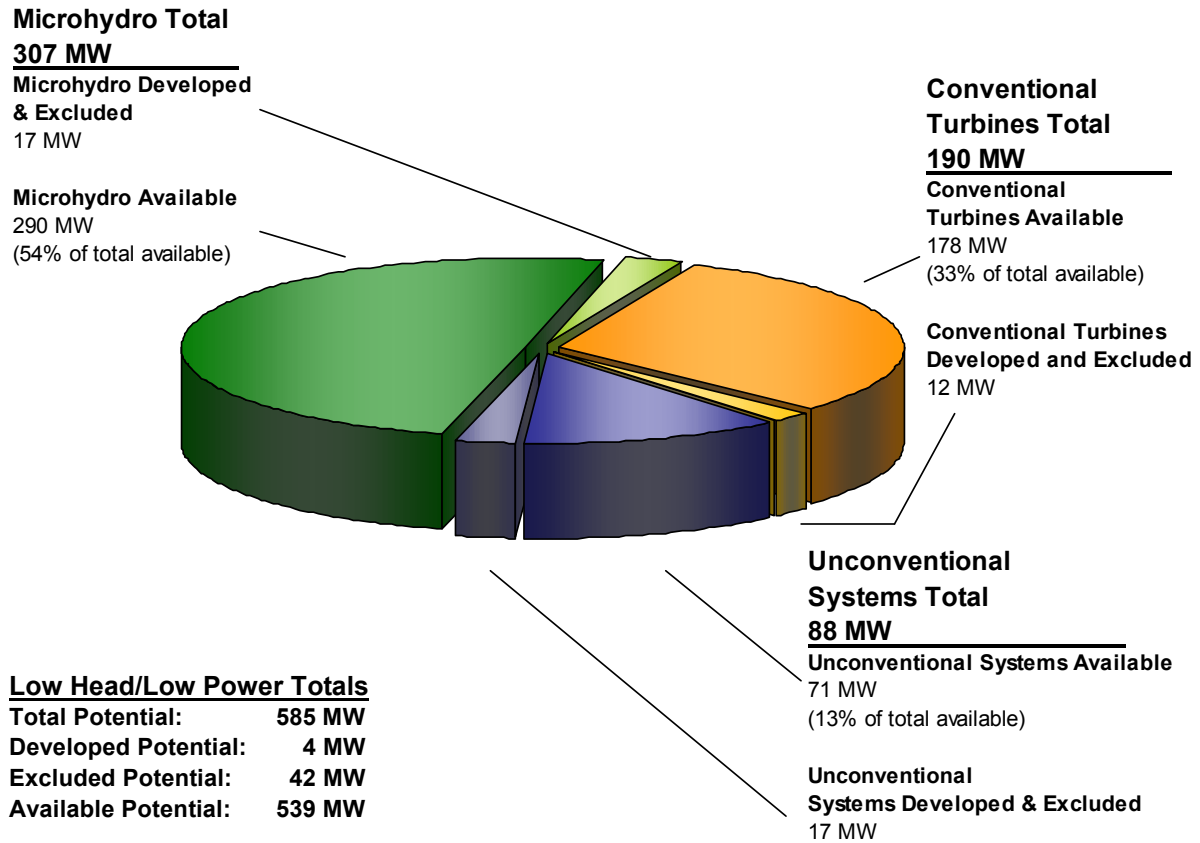|	
Total Potential:	**10 MW**
Developed Potential:	**0 MW**
Excluded Potential:	**1 MW**
Available Potential:	**9 MW**

Figure B-54. Distribution of the low head/low power power potential (annual mean power) of water energy resources in Hawaii among three low head/low power hydropower technology classes.
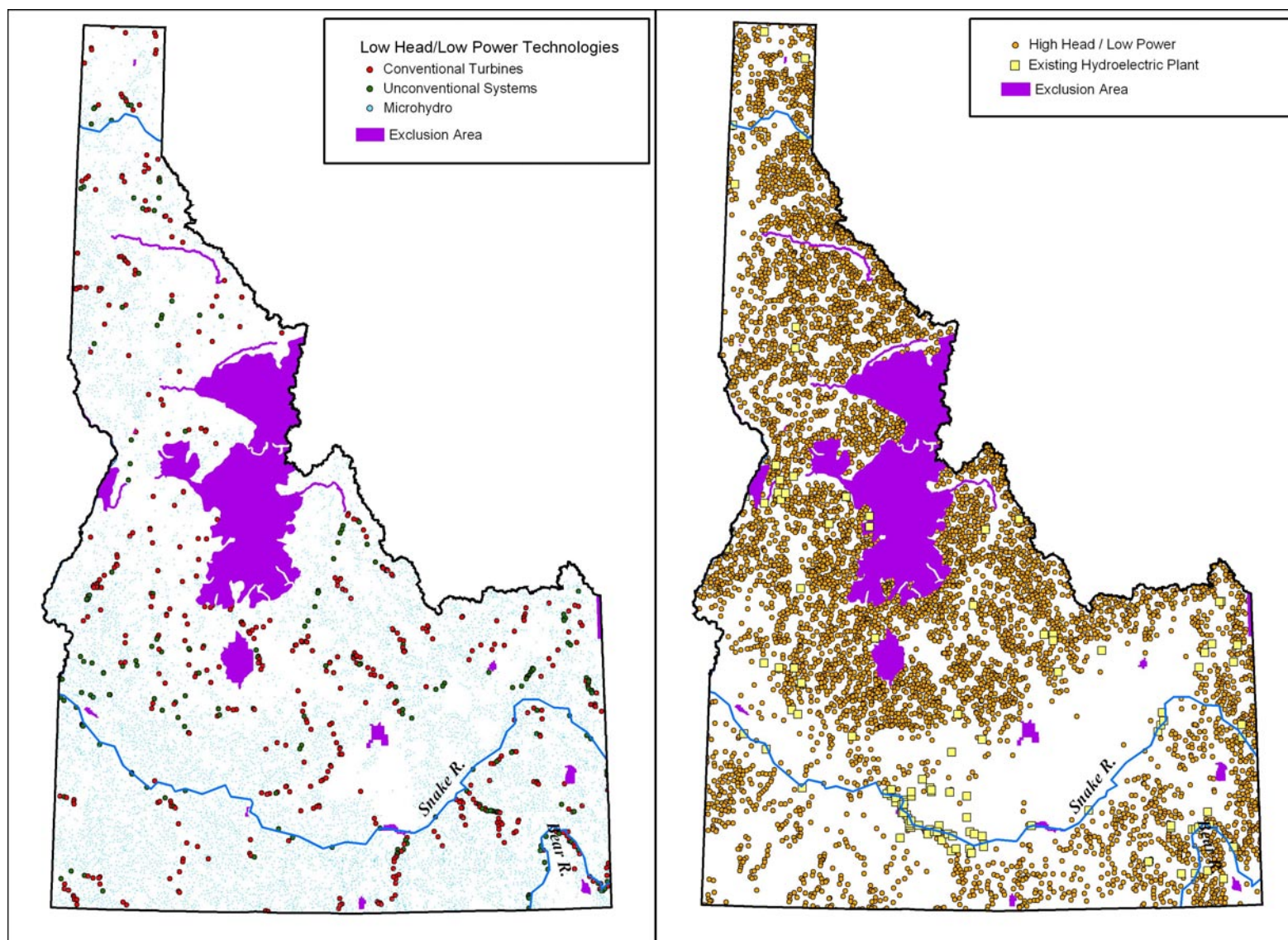
Figure B-55. Low head/low power and high head/low power water energy sites, and existing hydroelectric plants in Hawaii.

B.12 Idaho
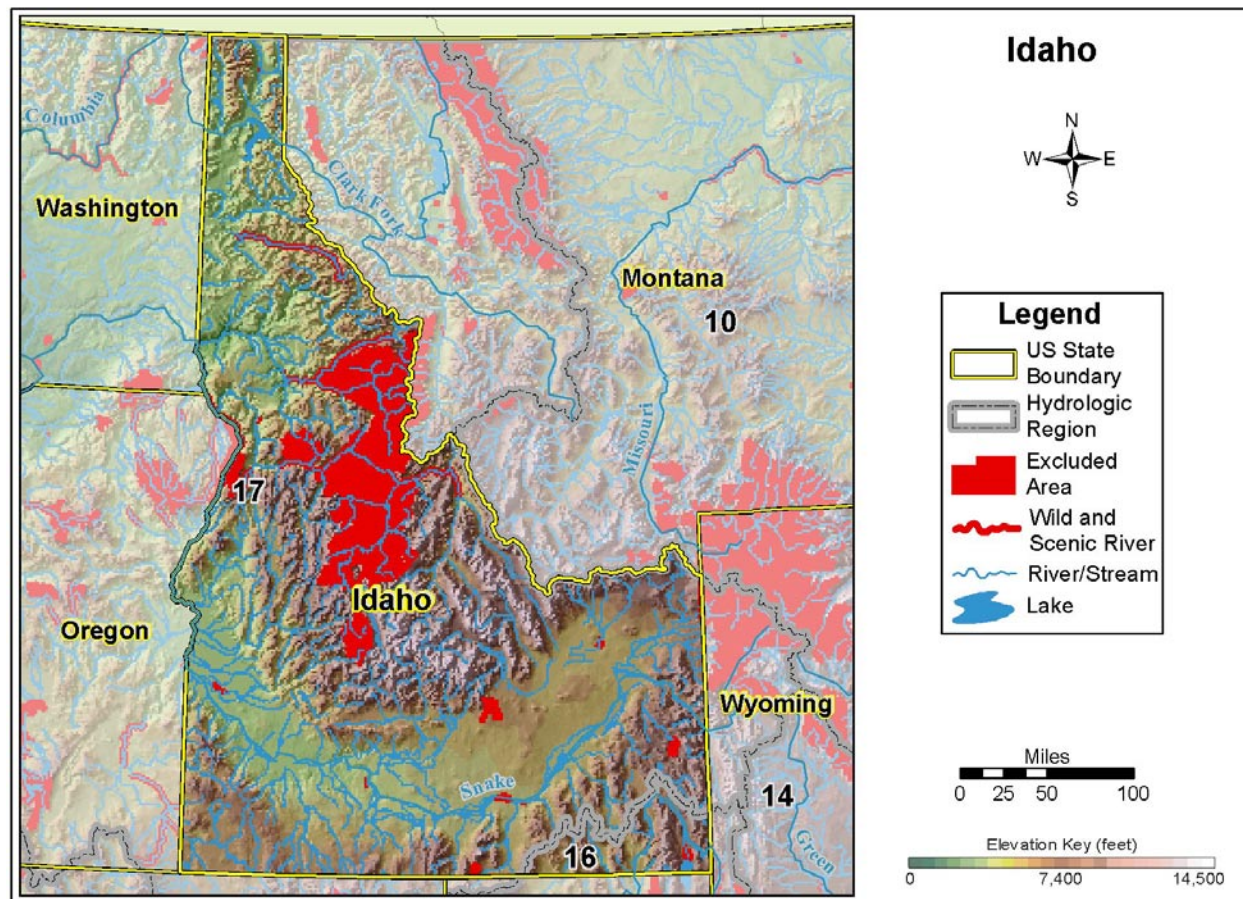
Figure B-56. Idaho.

Table B-12. Summary of results of water energy resource assessment of Idaho.

Annual Mean Power (MW)	Total	Developed	Excluded	Available[a]
TOTAL POWER	18,794	1,288	5,545	11,961
TOTAL HIGH POWER	15,677	1,266	5,025	9,386
High Head/High Power	12,207	1,194	3,890	7,123
Low Head/High Power	3,470	72	1,135	2,263
TOTAL LOW POWER	3,117	22	520	2,575
High Head/Low Power	2,532	18	478	2,036
Low Head/Low Power	585	4	42	539
Conventional Turbine	190	3	9	178
Unconventional Systems	88	0	17	71
Microhydro	307	1	16	290

a. No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.

Excluded Potential
5,545 MW
30%

Developed Potential
1,288 MW
7%

Available Potential
11,961 MW
64%

Total Power Potential
18,794 MW

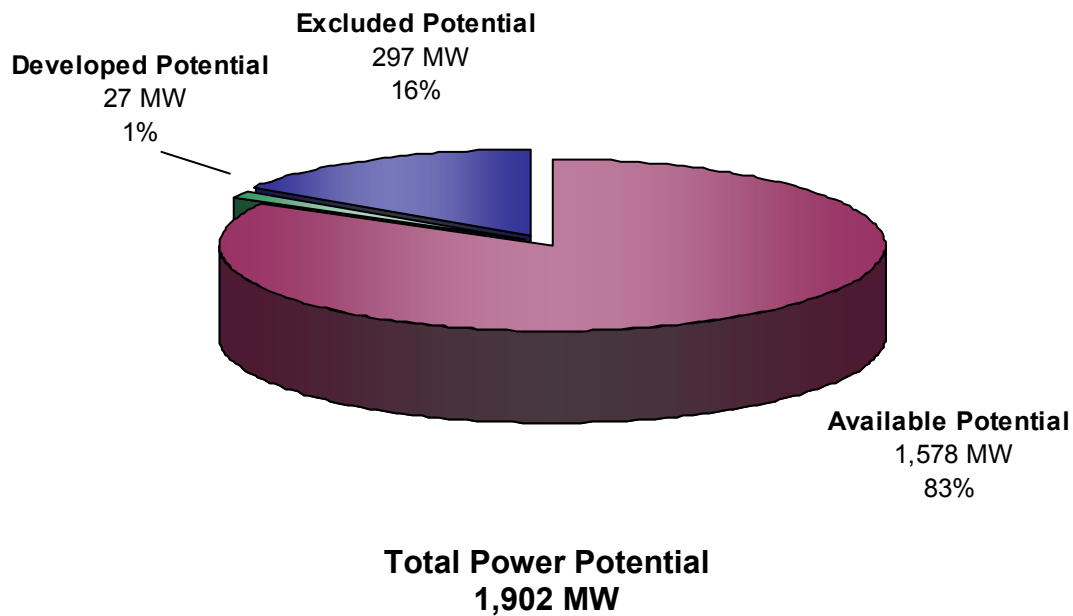Figure B-57. Power category distribution of the total power potential (annual mean power) of water energy resources in Idaho.

High Power
9,386 MW
78%

High Head/Low Power
2,036 MW
17%

Low Head/Low Power
539 MW
5%

Total Available Potential
11,961 MW
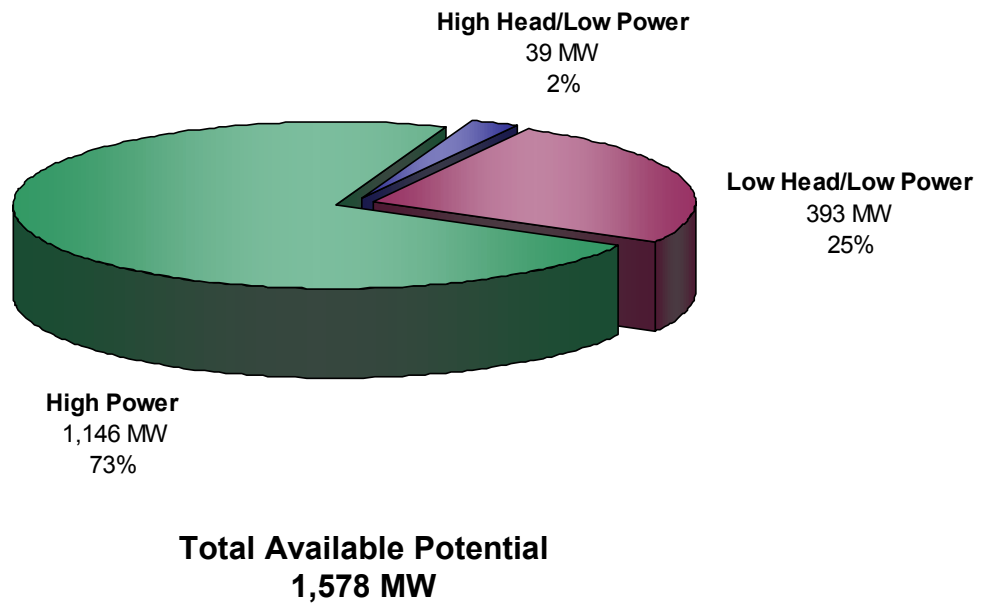
Figure B-58. Power class distribution of the available power potential (annual mean power) of water energy resources in Idaho.

Microhydro Total
307 MW
Microhydro Developed & Excluded
17 MW

Microhydro Available
290 MW
(54% of total available)

Conventional Turbines Total
190 MW
Conventional Turbines Available
178 MW
(33% of total available)

Conventional Turbines Developed and Excluded
12 MW

Unconventional Systems Total
88 MW
Unconventional Systems Available
71 MW
(13% of total available)

Unconventional Systems Developed & Excluded
17 MW

Low Head/Low Power Totals
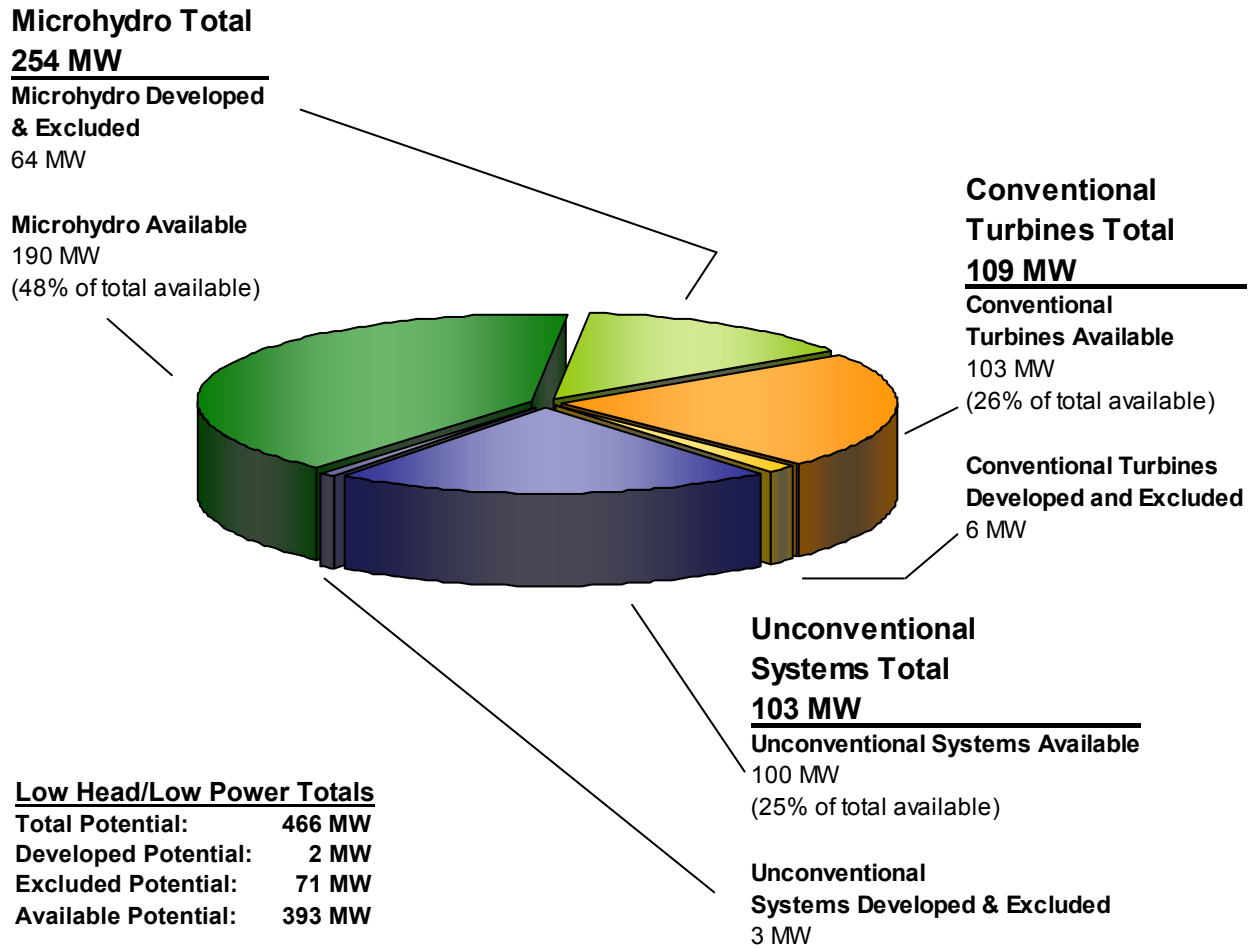|	
Total Potential:	**585 MW**
Developed Potential:	**4 MW**
Excluded Potential:	**42 MW**
Available Potential:	**539 MW**

Figure B-59. Distribution of the low head/low power power potential (annual mean power) of water energy resources in Idaho among three low head/low power hydropower technology classes.
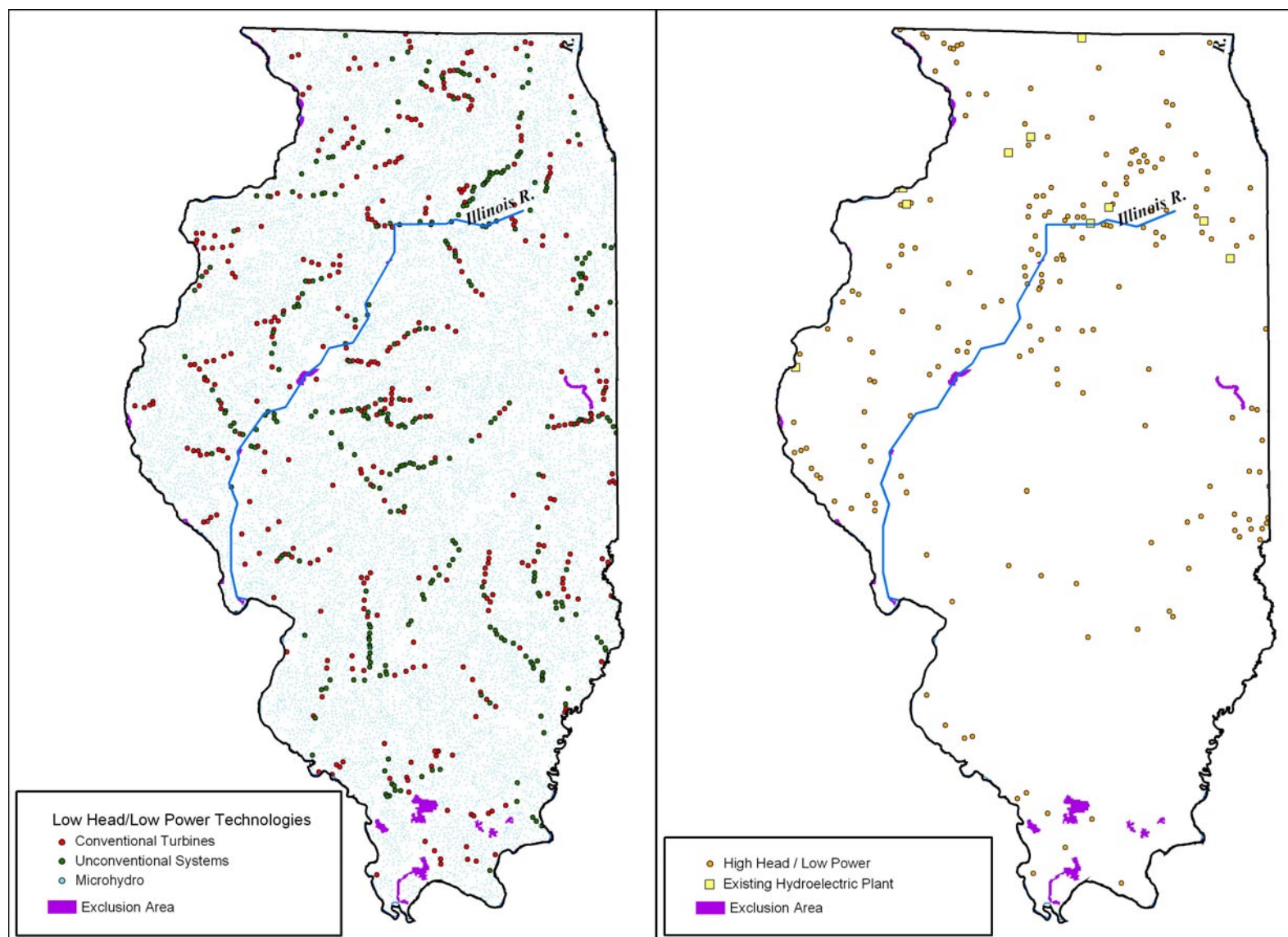
Figure B-60. Low head/low power and high head/low power water energy sites, and existing hydroelectric plants in Idaho.
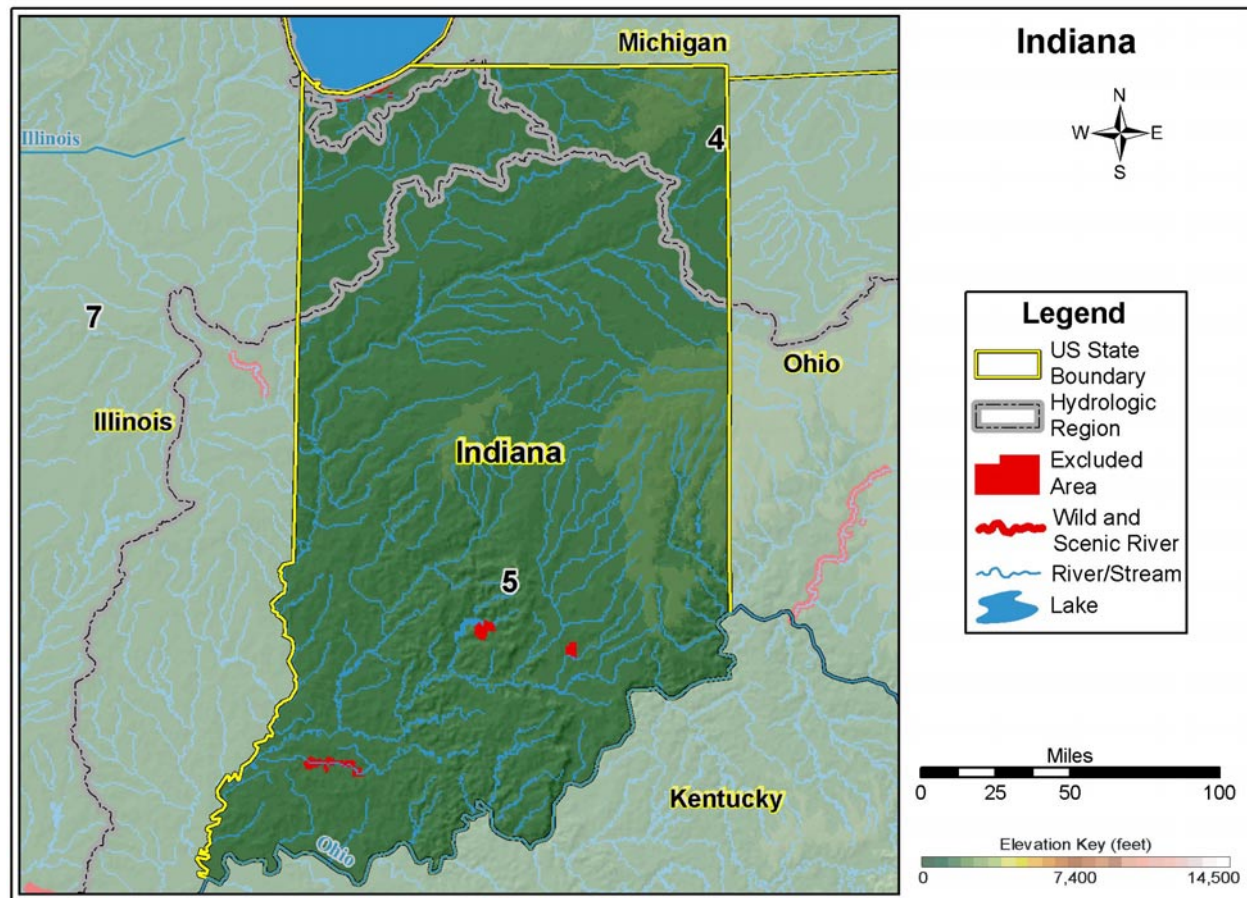
B.13 Illinois
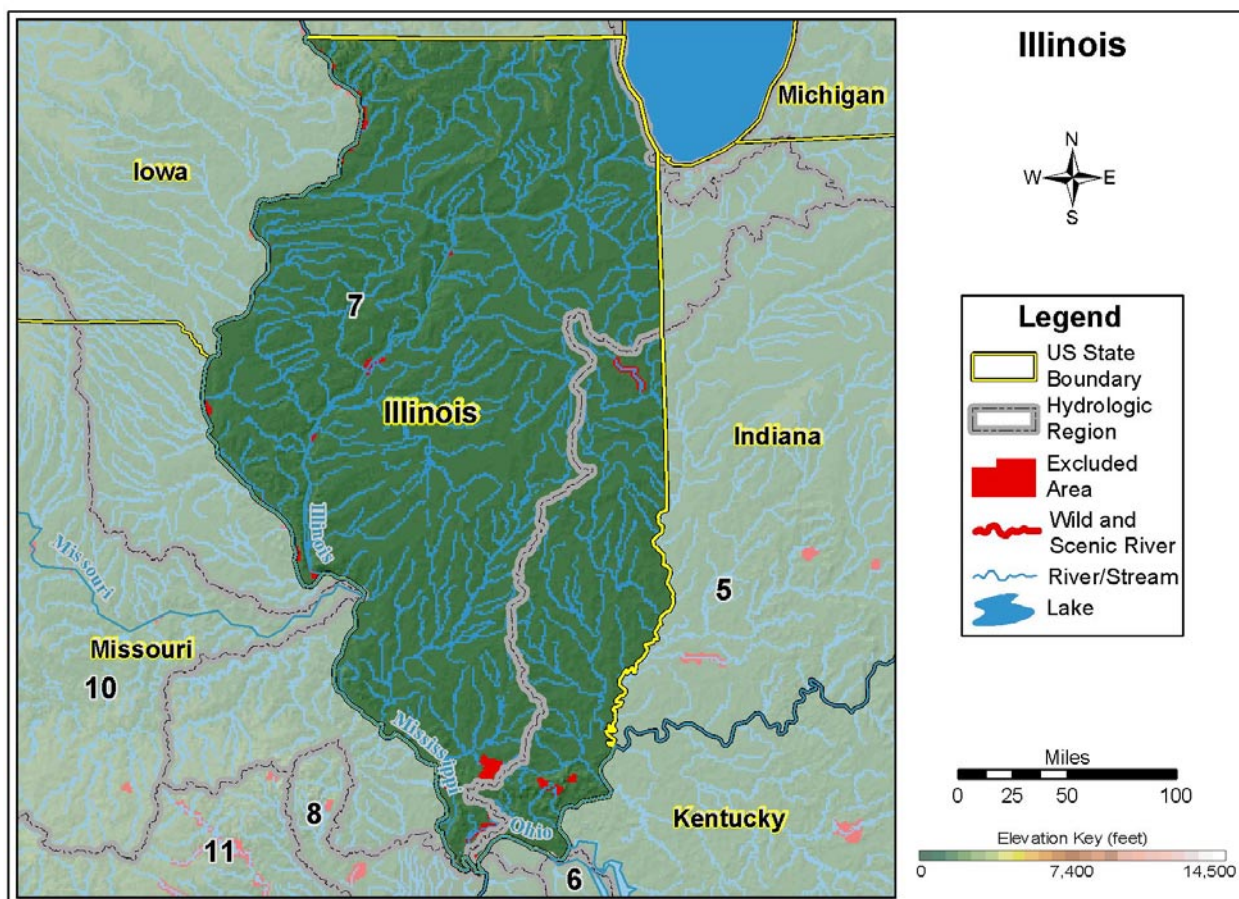
Figure B-61. Illinois.

Table B-13. Summary of results of water energy resource assessment of Illinois.

Annual Mean Power (MW)	Total	Developed	Excluded	Available[a]
TOTAL POWER	**1,902**	**27**	**297**	**1,578**
TOTAL HIGH POWER	**1,395**	**25**	**224**	**1,146**
High Head/High Power	12	10	0	2
Low Head/High Power	1,383	15	224	1,144
TOTAL LOW POWER	**507**	**2**	**73**	**432**
High Head/Low Power	41	0	2	39
Low Head/Low Power	466	2	71	393
Conventional Turbine	109	2	4	103
Unconventional Systems	103	0	3	100
Microhydro	254	0	64	190
a. No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.				

Developed Potential
27 MW
1%

Excluded Potential
297 MW
16%

Available Potential
1,578 MW
83%

Total Power Potential
1,902 MW

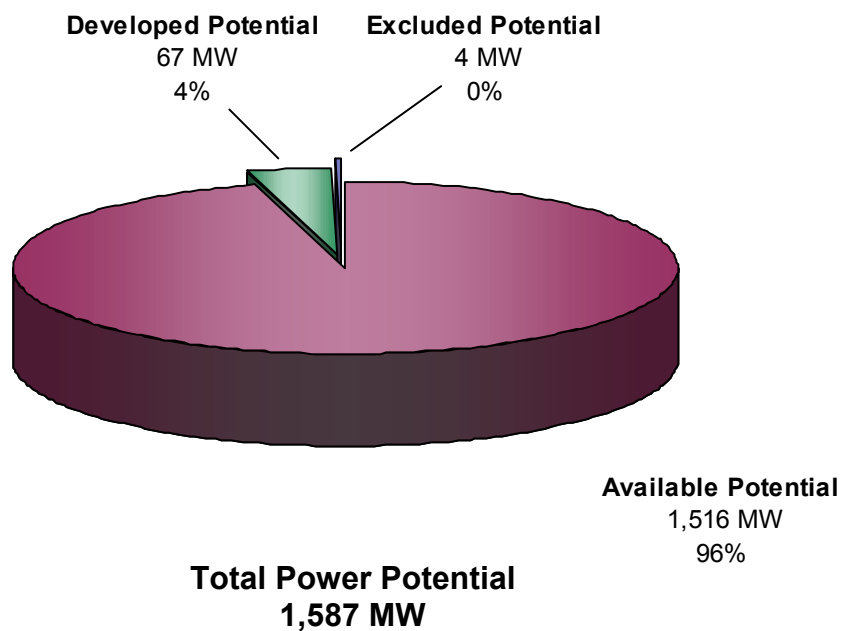Figure B-62. Power category distribution of the total power potential (annual mean power) of water energy resources in Illinois.

High Head/Low Power
39 MW
2%

Low Head/Low Power
393 MW
25%

High Power
1,146 MW
73%

Total Available Potential
1,578 MW
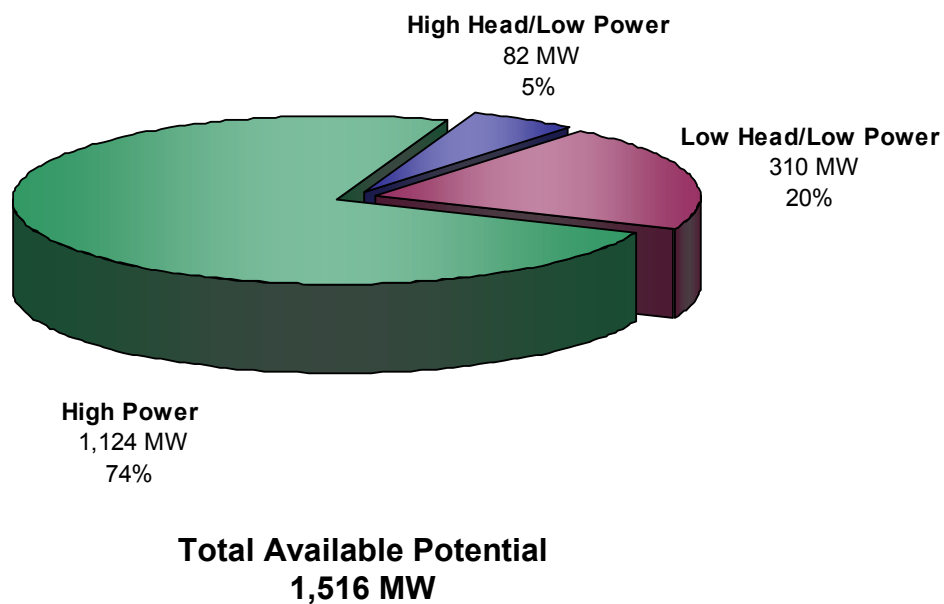
Figure B-63. Power class distribution of the available power potential (annual mean power) of water energy resources in Illinois.

Microhydro Total
254 MW
Microhydro Developed
& Excluded
64 MW

Microhydro Available
190 MW
(48% of total available)

Conventional
Turbines Total
109 MW
Conventional
Turbines Available
103 MW
(26% of total available)

Conventional Turbines
Developed and Excluded
6 MW

Unconventional
Systems Total
103 MW
Unconventional Systems Available
100 MW
(25% of total available)

Unconventional
Systems Developed & Excluded
3 MW

Low Head/Low Power Totals
Total Potential: **466 MW**
Developed Potential: **2 MW**
Excluded Potential: **71 MW**
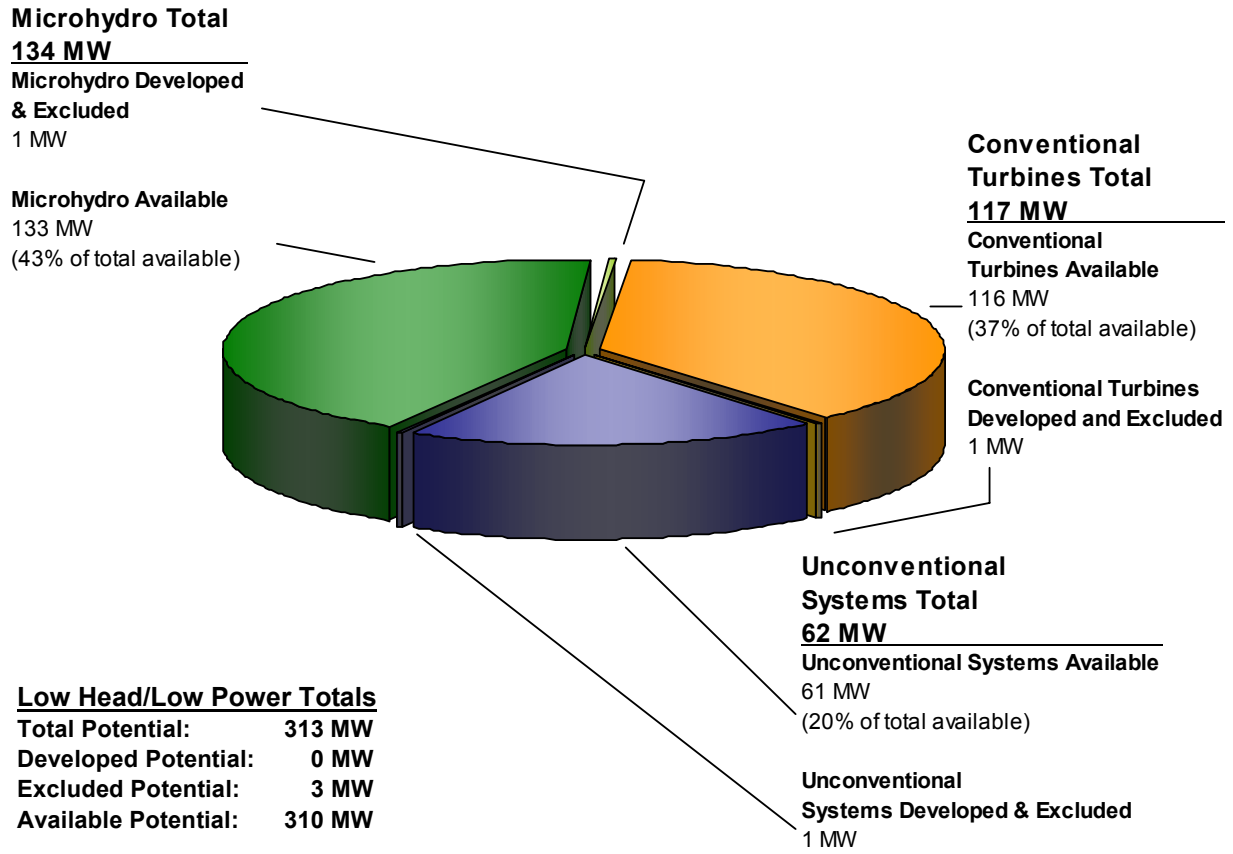**Available Potential:** **393 MW**

Illinois

Figure B-64. Distribution of the low head/low power power potential (annual mean power) of water energy resources in Illinois among three low head/low power hydropower technology classes.
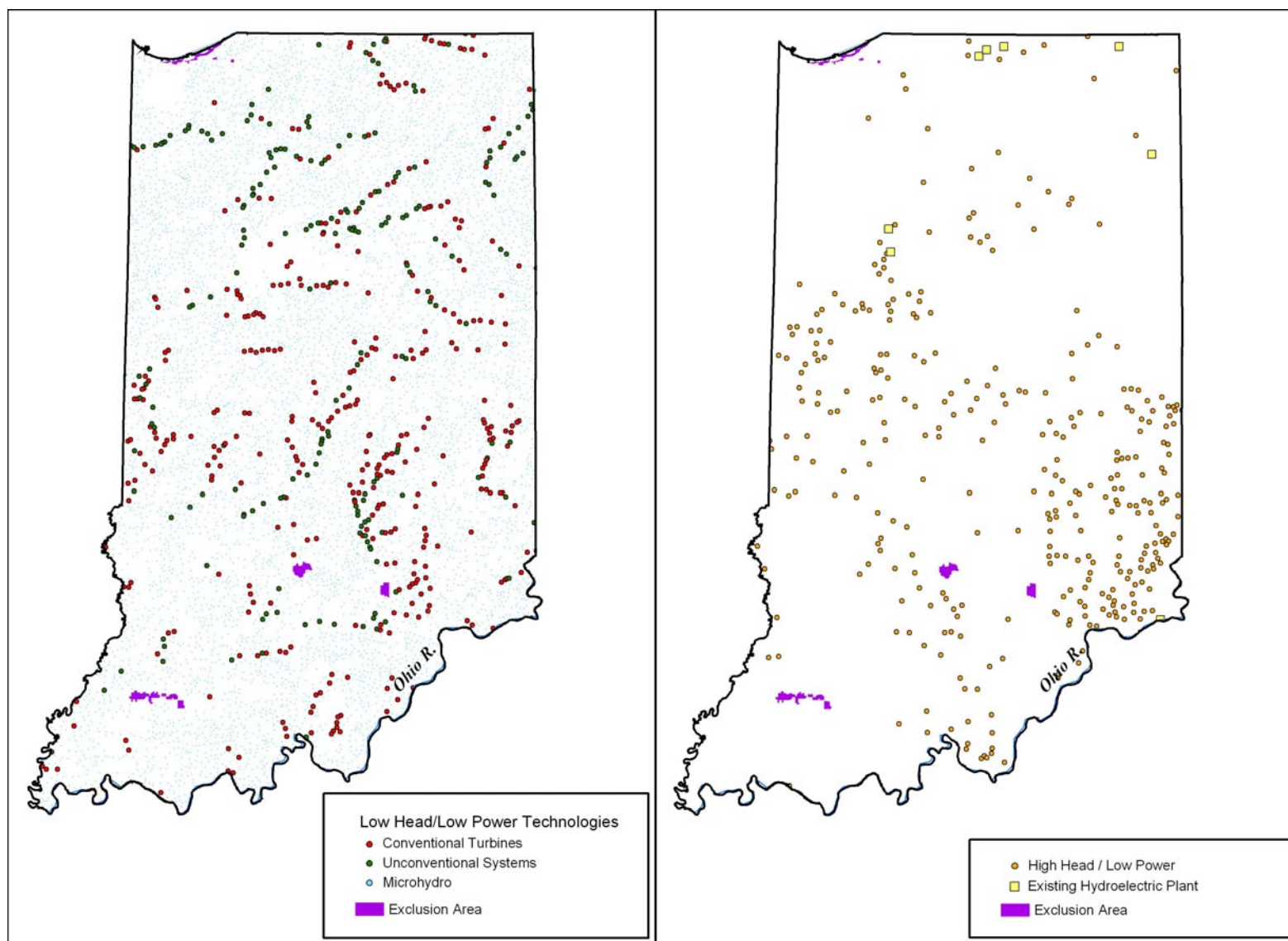
Figure B-65. Low head/low power and high head/low power water energy sites, and existing hydroelectric plants in Illinois.
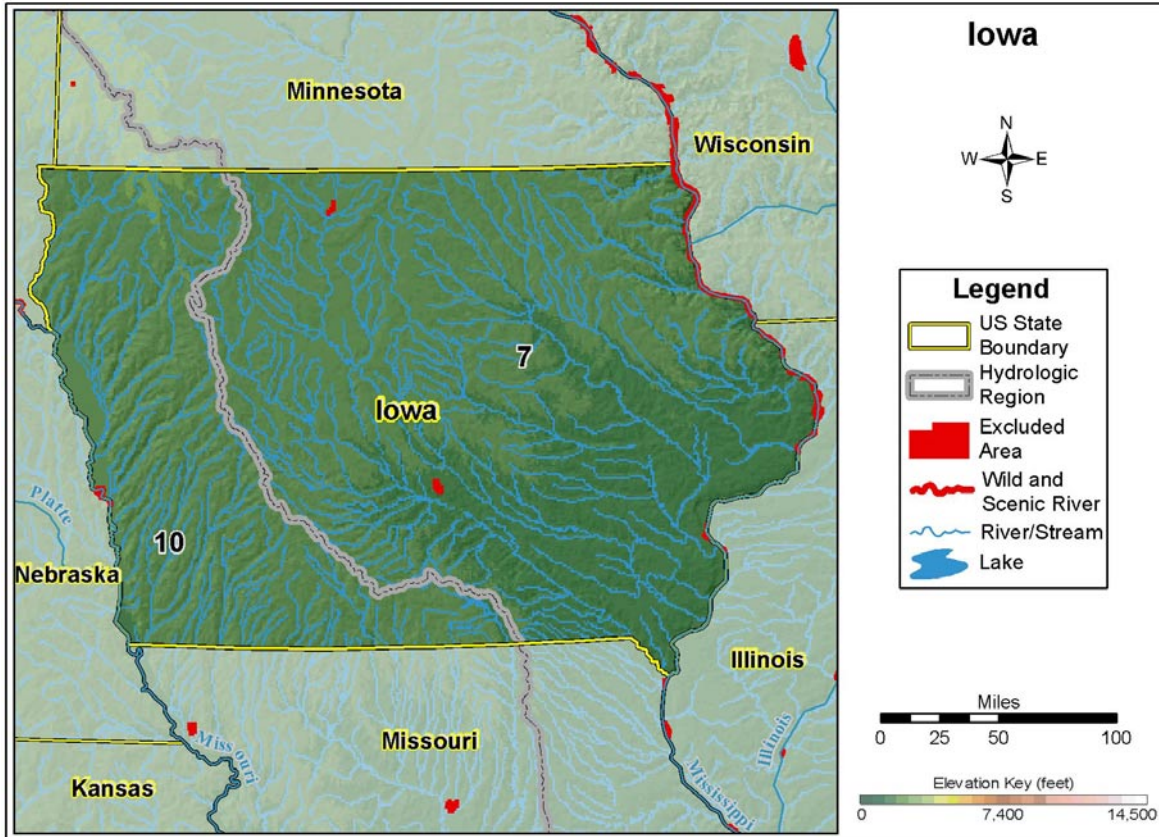
B.14 Indiana

Figure B-66. Indiana.

Table B-14. Summary of results of water energy resource assessment of Indiana.

Annual Mean Power (MW)	Total	Developed	Excluded	Available[a]
TOTAL POWER	**1,587**	**67**	**4**	**1,516**
TOTAL HIGH POWER	**1,192**	**67**	**1**	**1,124**
High Head/High Power	353	63	0	290
Low Head/High Power	839	4	1	834
TOTAL LOW POWER	**395**	**0**	**3**	**392**
High Head/Low Power	82	0	0	82
Low Head/Low Power	313	0	3	310
Conventional Turbine	117	0	1	116
Unconventional Systems	62	0	1	61
Microhydro	134	0	1	133

a. No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.

Developed Potential
67 MW
4%

Excluded Potential
4 MW
0%

Available Potential
1,516 MW
96%

Total Power Potential
1,587 MW

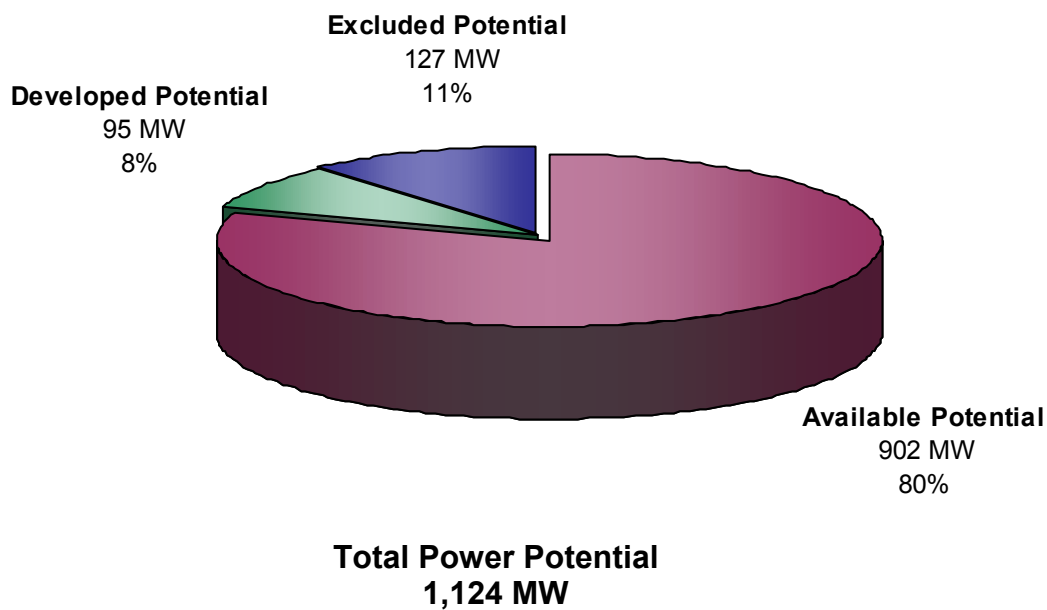Figure B-67. Power category distribution of the total power potential (annual mean power) of water energy resources in Indiana.

High Head/Low Power
82 MW
5%

Low Head/Low Power
310 MW
20%

High Power
1,124 MW
74%

Total Available Potential
1,516 MW

Figure B-68. Power class distribution of the available power potential (annual mean power) of water energy resources in Indiana.

Microhydro Total
134 MW
Microhydro Developed
& Excluded
1 MW

Microhydro Available
133 MW
(43% of total available)

Conventional
Turbines Total
117 MW
Conventional
Turbines Available
116 MW
(37% of total available)

Conventional Turbines
Developed and Excluded
1 MW

Unconventional
Systems Total
62 MW
Unconventional Systems Available
61 MW
(20% of total available)

Unconventional
Systems Developed & Excluded
1 MW

Low Head/Low Power Totals
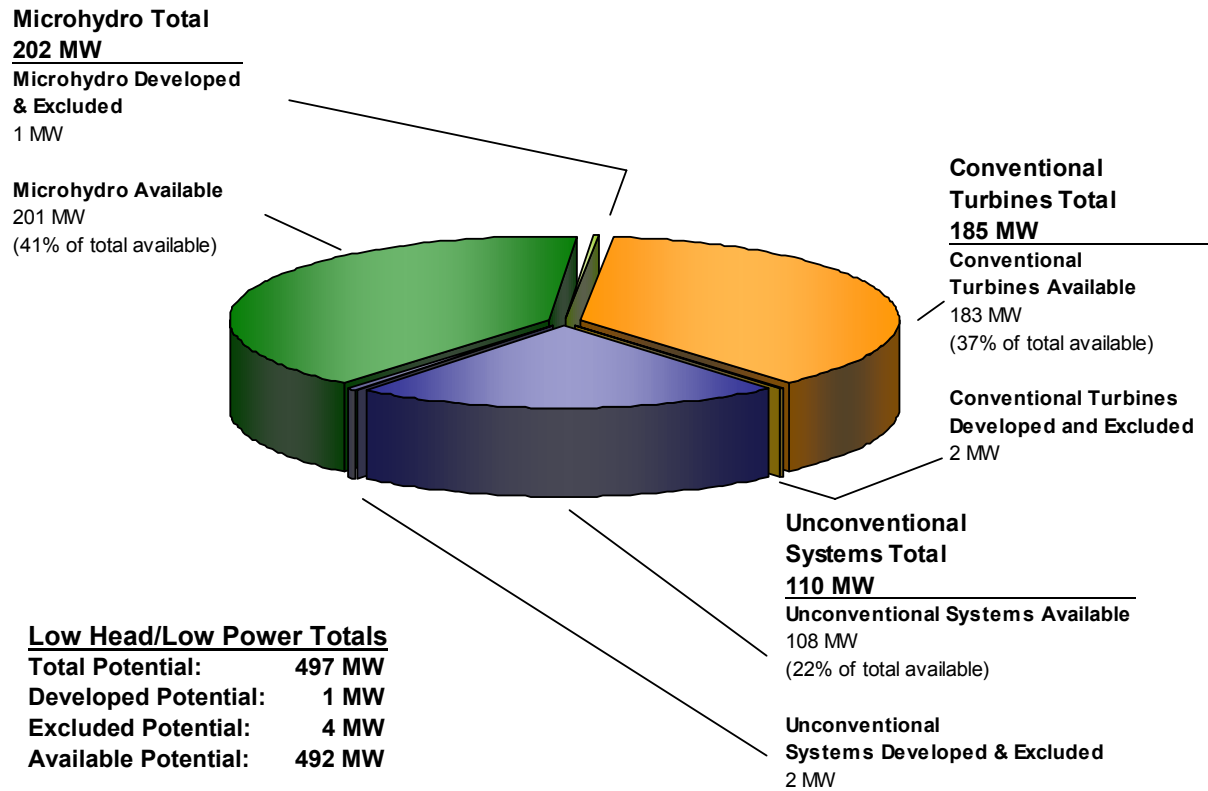|	
Total Potential:	**313 MW**
Developed Potential:	**0 MW**
Excluded Potential:	**3 MW**
Available Potential:	**310 MW**

Figure B-69. Distribution of the low head/low power power potential (annual mean power) of water energy resources in Indiana among three low head/low power hydropower technology classes.
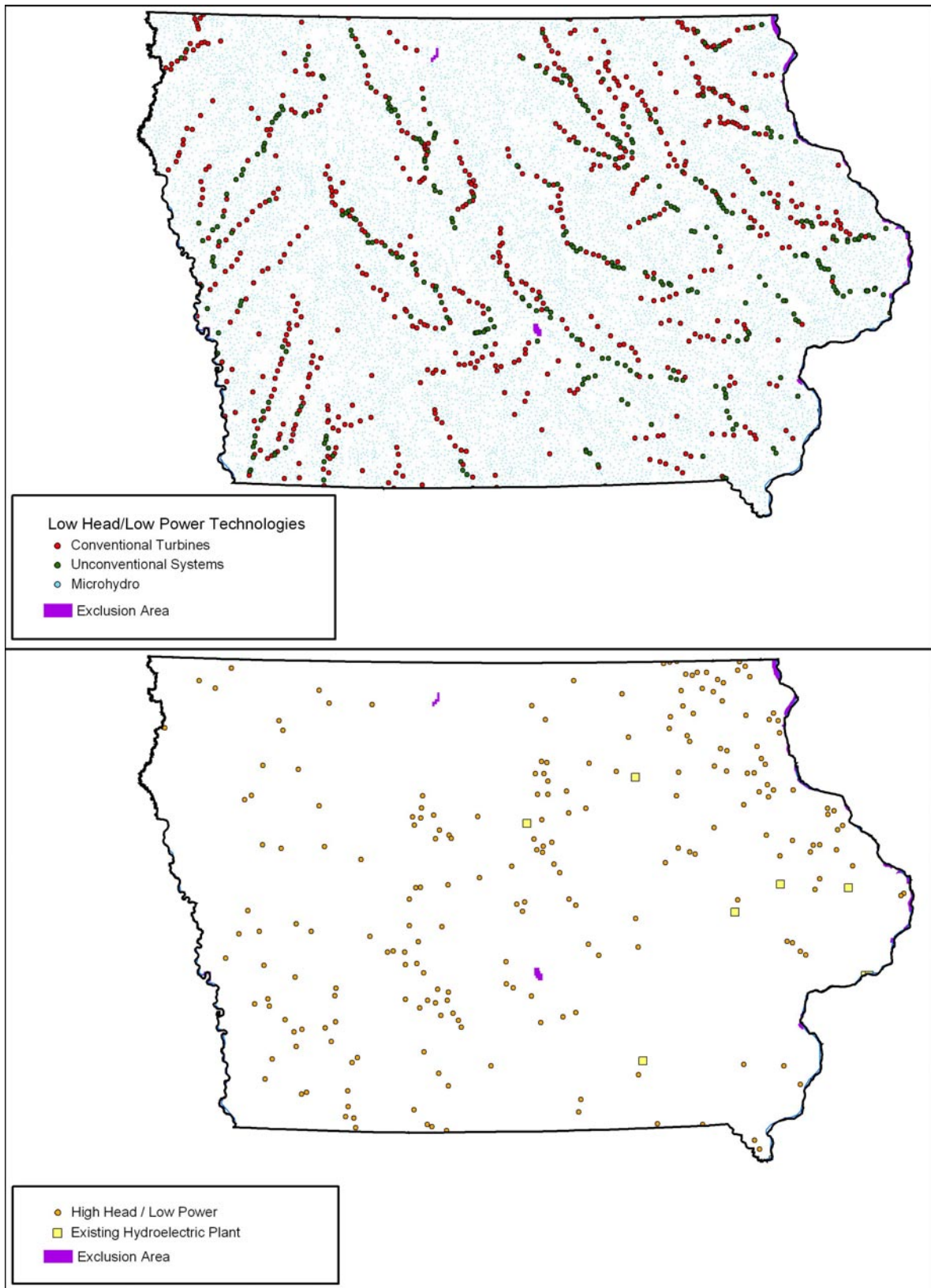
Figure B-70. Low head/low power and high head/low power water energy sites, and existing hydroelectric plants in Indiana.

B.15 Iowa

Figure B-71. Iowa.

Table B-15. Summary of results of water energy resource assessment of Iowa.

Annual Mean Power (MW)	Total	Developed[a]	Excluded	Available[a,b]
TOTAL POWER	**1,124**	**95**	**127**	**902**
TOTAL HIGH POWER	**578**	**94**	**123**	**361**
High Head/High Power	40	40	0	0
Low Head/High Power	538	54	123	361
TOTAL LOW POWER	**546**	**1**	**4**	**541**
High Head/Low Power	49	0	0	49
Low Head/Low Power	497	1	4	492
Conventional Turbine	185	1	1	183
Unconventional Systems	110	0	2	108
Microhydro	202	0	1	201

a. Developed high head/high power potential exceeded total potential in this power class probably because the developed power is made up of resources in other power classes. "Excess" developed power in the high head/high power class (52 MW) was rolled downward into the low head/high power power class.

b. No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.

Excluded Potential
127 MW
11%

Developed Potential
95 MW
8%

Available Potential
902 MW
80%

**Total Power Potential
1,124 MW**
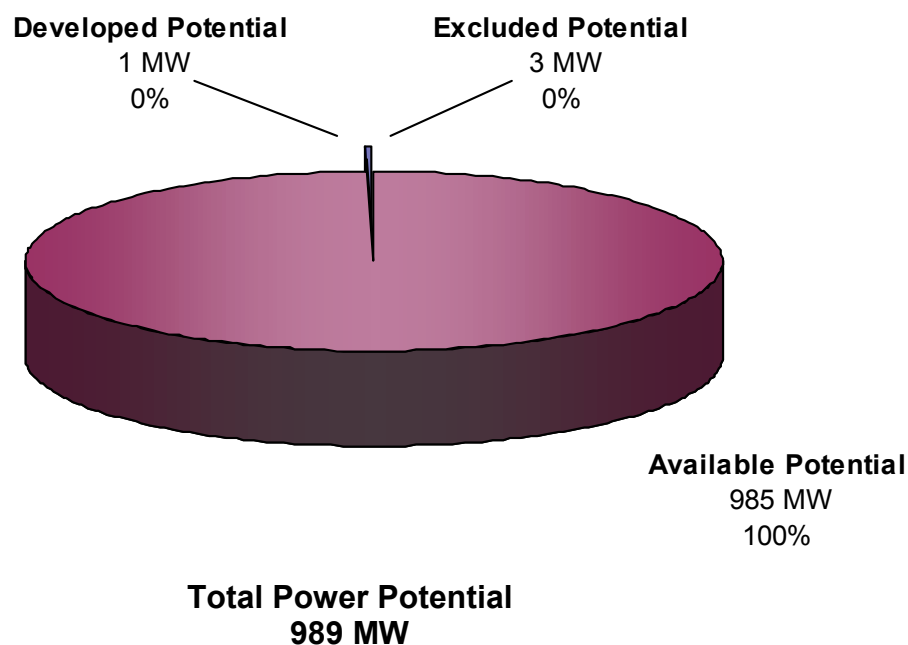
Figure B-72. Power category distribution of the total power potential (annual mean power) of water energy resources in Iowa.

High Power
361 MW
40%

High Head/Low Power
49 MW
5%

Low Head/Low Power
492 MW
55%

**Total Available Potential
902 MW**
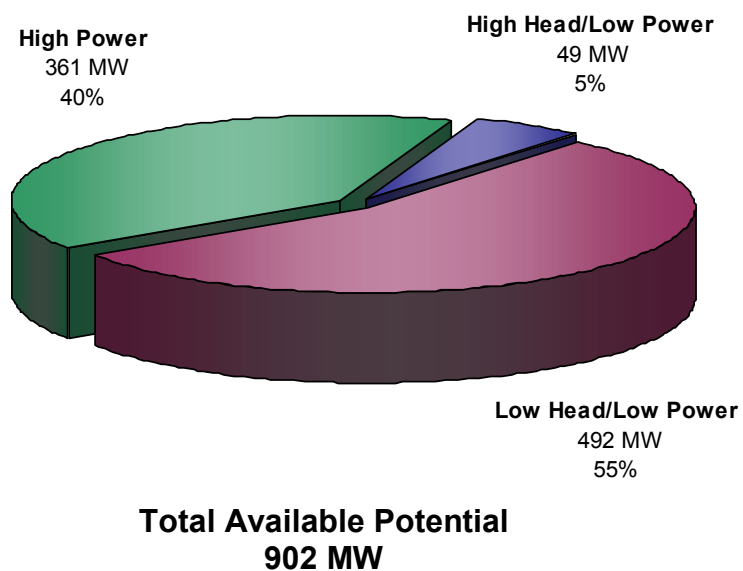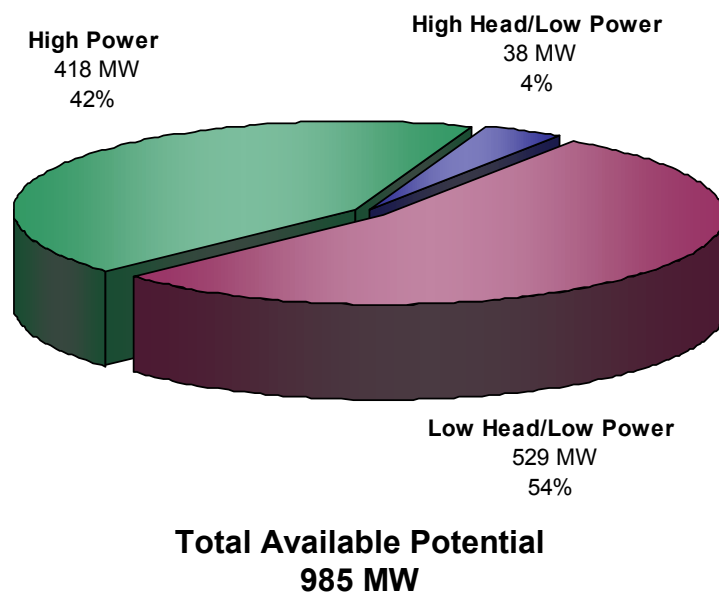
Figure B-73. Power class distribution of the available power potential (annual mean power) of water energy resources in Iowa.

**Microhydro Total
202 MW**

**Microhydro Developed
& Excluded**
1 MW

Microhydro Available
201 MW
(41% of total available)

**Conventional
Turbines Total
185 MW**

**Conventional
Turbines Available**
183 MW
(37% of total available)

**Conventional Turbines
Developed and Excluded**
2 MW

**Unconventional
Systems Total
110 MW**

Unconventional Systems Available
108 MW
(22% of total available)

**Unconventional
Systems Developed & Excluded**
2 MW

Low Head/Low Power Totals

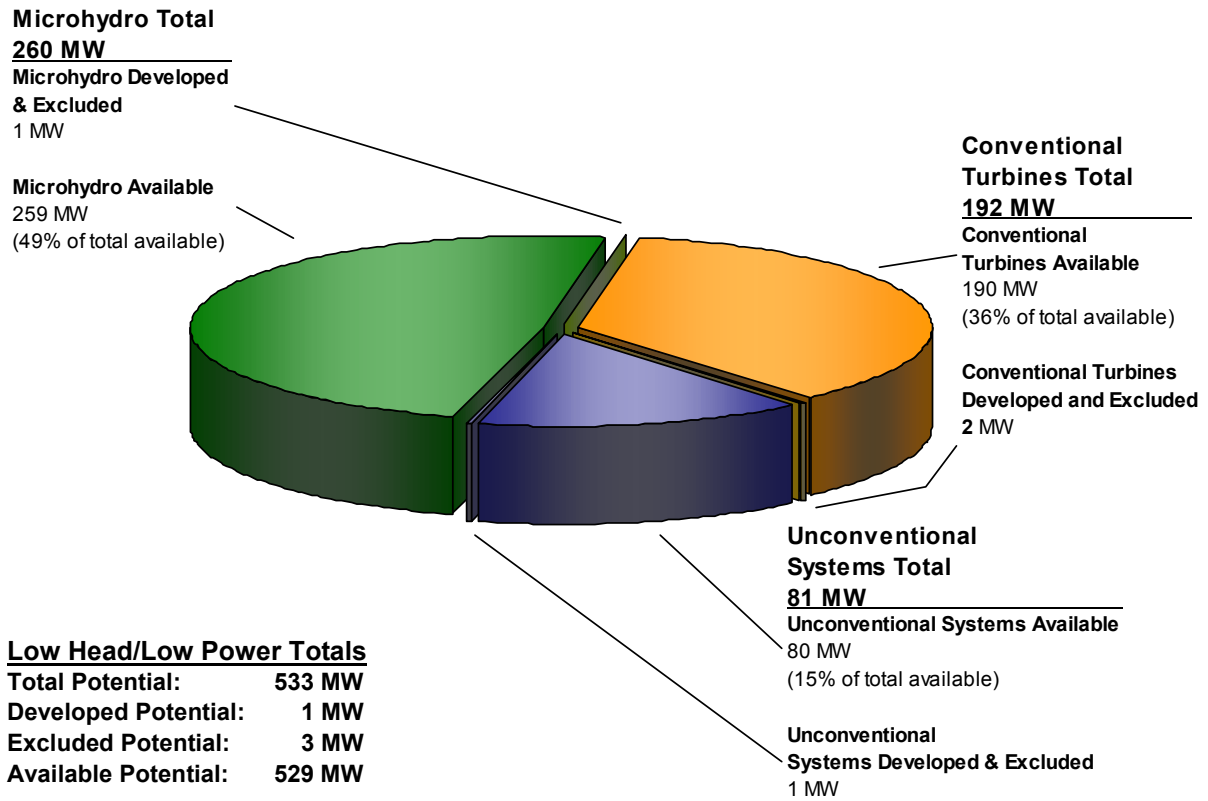|	
Total Potential:	**497 MW**
Developed Potential:	**1 MW**
Excluded Potential:	**4 MW**
Available Potential:	**492 MW**

Figure B-74. Distribution of the low head/low power power potential (annual mean power) of water energy resources in Iowa among three low head/low power hydropower technology classes.
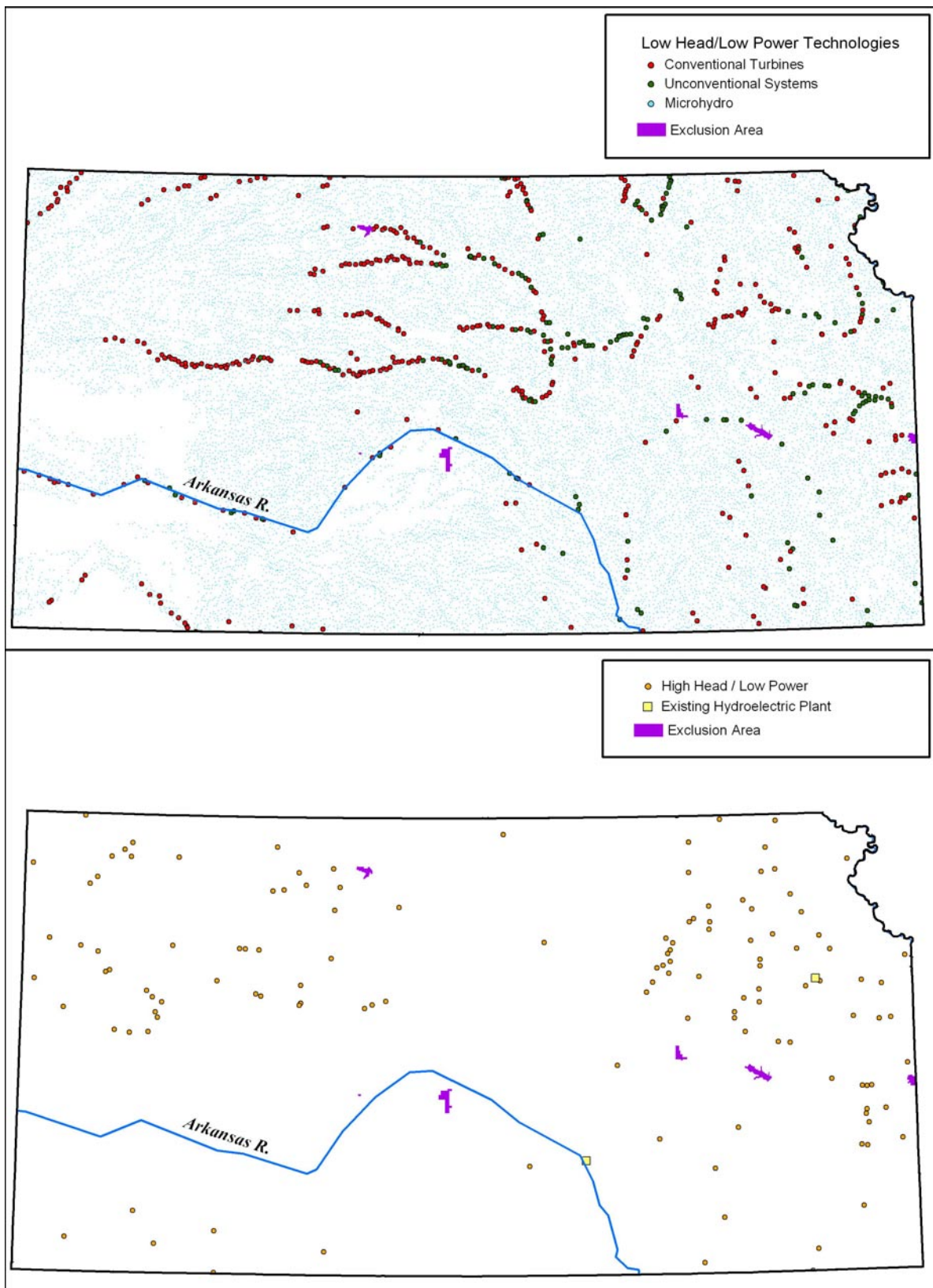
Figure B-75. Low head/low power and high head/low power water energy sites, and existing hydroelectric plants in Iowa.
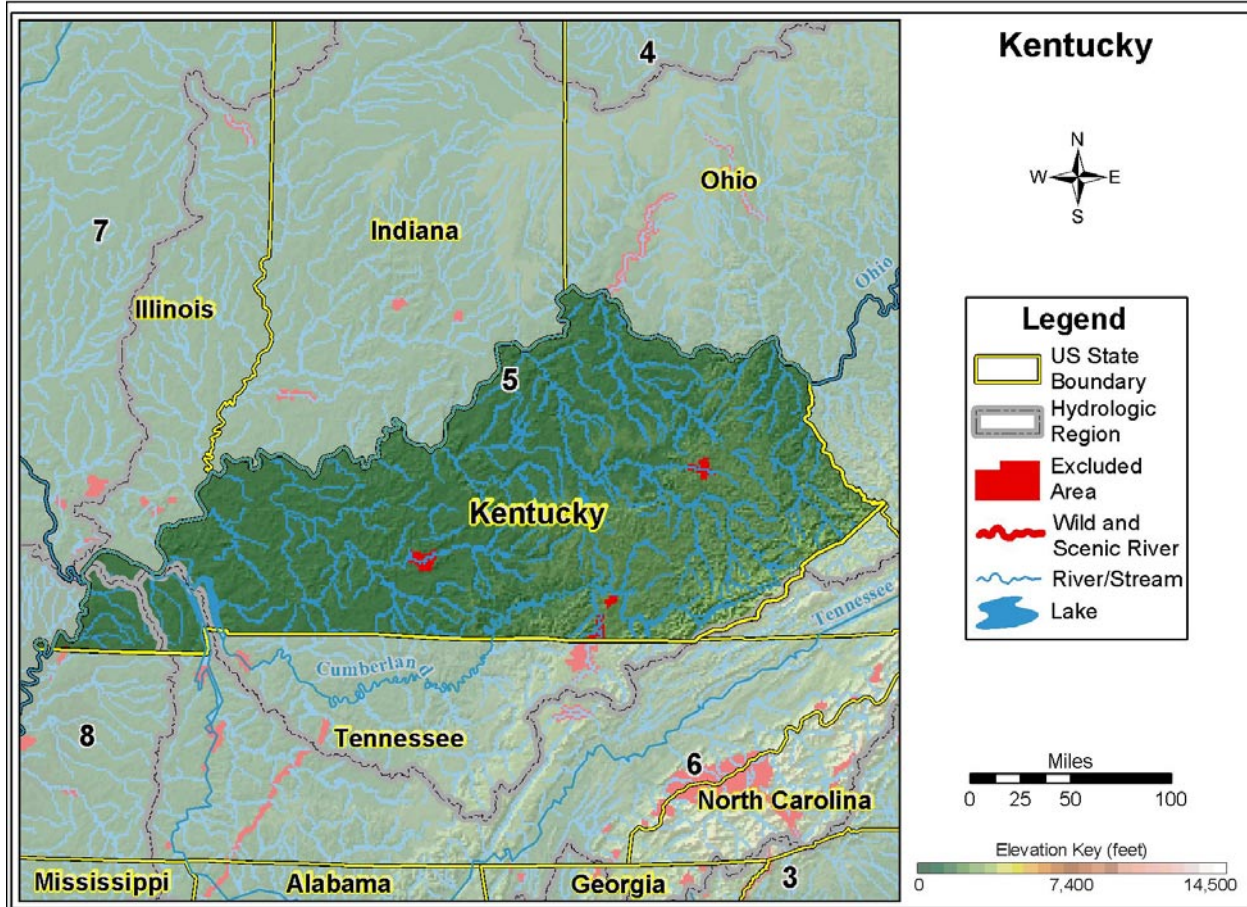
B.16 Kansas
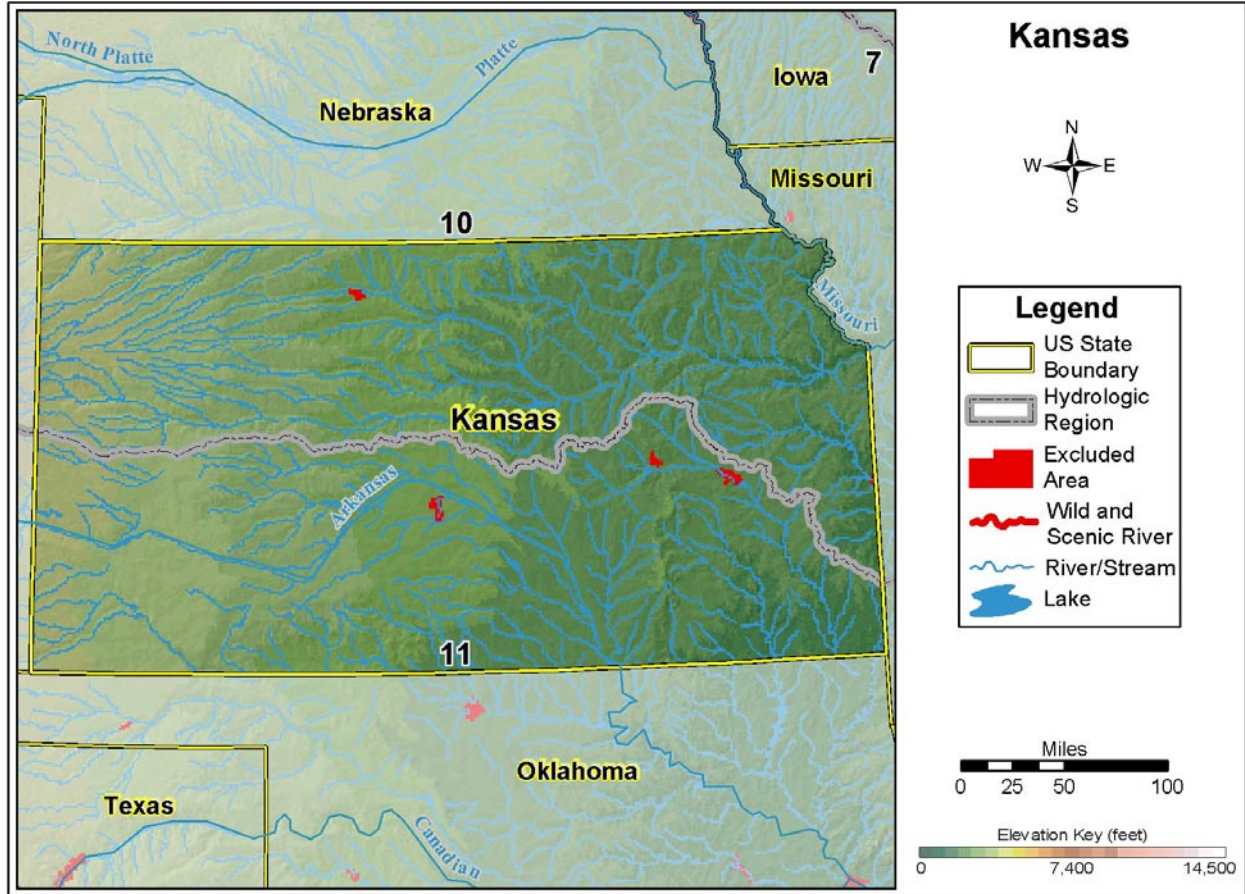
Figure B-76. Kansas.

Table B-16. Summary of results of water energy resource assessment of Kansas.

Annual Mean Power (MW)	Total	Developed	Excluded	Available[a]
TOTAL POWER	**989**	**1**	**3**	**985**
TOTAL HIGH POWER	**418**	**0**	**0**	**418**
High Head/High Power	49	0	0	49
Low Head/High Power	369	0	0	369
TOTAL LOW POWER	**571**	**1**	**3**	**567**
High Head/Low Power	38	0	0	38
Low Head/Low Power	533	1	3	529
Conventional Turbine	192	1	1	190
Unconventional Systems	81	0	1	80
Microhydro	260	0	1	259
a. No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.				

Developed Potential
1 MW
0%

Excluded Potential
3 MW
0%

Available Potential
985 MW
100%

Total Power Potential
989 MW
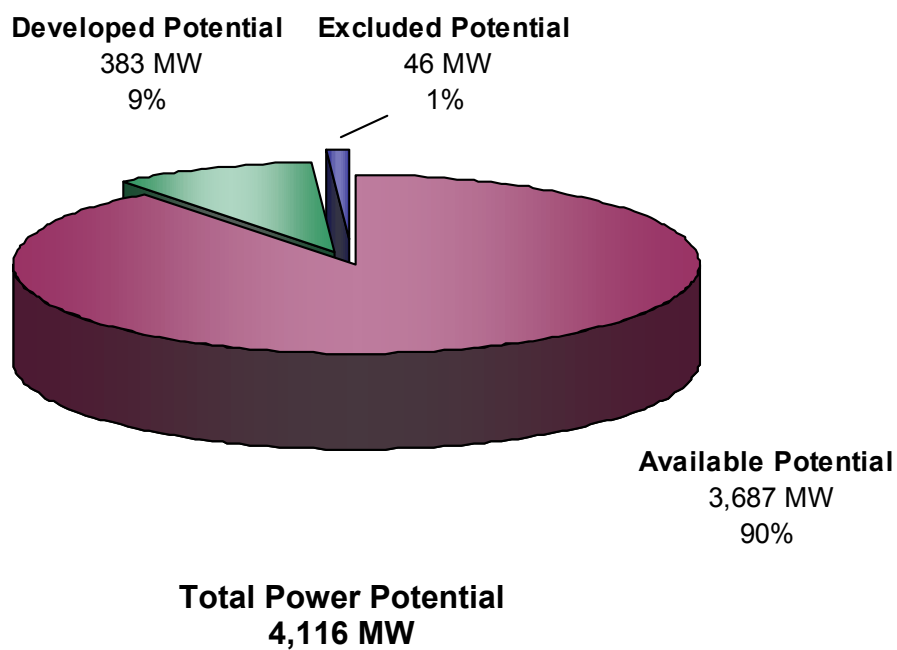
Figure B-77. Power category distribution of the total power potential (annual mean power) of water energy resources in Kansas.

High Power
418 MW
42%

High Head/Low Power
38 MW
4%

Low Head/Low Power
529 MW
54%

Total Available Potential
985 MW

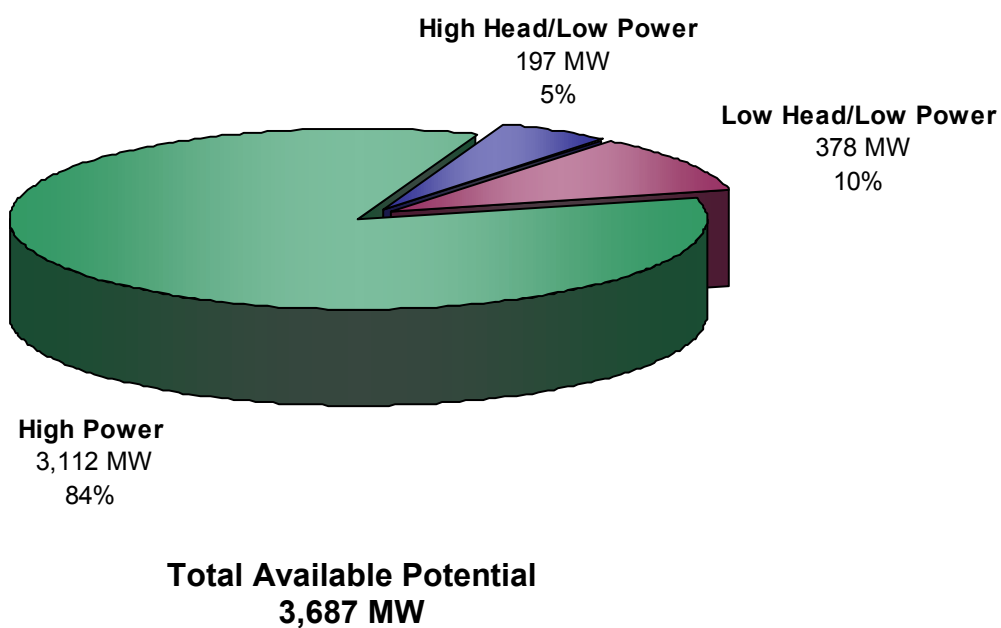Figure B-78. Power class distribution of the available power potential (annual mean power) of water energy resources in Kansas.

Microhydro Total
260 MW
Microhydro Developed
& Excluded
1 MW

Microhydro Available
259 MW
(49% of total available)

Conventional
Turbines Total
192 MW
Conventional
Turbines Available
190 MW
(36% of total available)

Conventional Turbines
Developed and Excluded
2 MW

Unconventional
Systems Total
81 MW
Unconventional Systems Available
80 MW
(15% of total available)

Unconventional
Systems Developed & Excluded
1 MW

Low Head/Low Power Totals
|	
Total Potential:	**533 MW**
Developed Potential:	**1 MW**
Excluded Potential:	**3 MW**
Available Potential:	**529 MW**

Figure B-79. Distribution of the low head/low power power potential (annual mean power) of water energy resources in Kansas among three low head/low power hydropower technology classes.

Figure B-80. Low head/low power and high head/low power water energy sites, and existing hydroelectric plants in Kansas.

B.17 Kentucky

Figure B-81. Kentucky.

Table B-17. Summary of results of water energy resource assessment of Kentucky.

Annual Mean Power (MW)	Total	Developed	Excluded	Available[a]
TOTAL POWER	**4,116**	**383**	**46**	**3,687**
TOTAL HIGH POWER	**3,526**	**381**	**33**	**3,112**
High Head/High Power	780	381	16	383
Low Head/High Power	2,746	0	17	2,729
TOTAL LOW POWER	**590**	**2**	**13**	**575**
High Head/Low Power	204	0	7	197
Low Head/Low Power	386	2	6	378
Conventional Turbine	138	2	2	134
Unconventional Systems	51	0	2	49
Microhydro	197	0	2	195
a. No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.				

Developed Potential
383 MW
9%

Excluded Potential
46 MW
1%

Available Potential
3,687 MW
90%

Total Power Potential
4,116 MW

Figure B-82. Power category distribution of the total power potential (annual mean power) of water energy resources in Kentucky.

High Head/Low Power
197 MW
5%

Low Head/Low Power
378 MW
10%

High Power
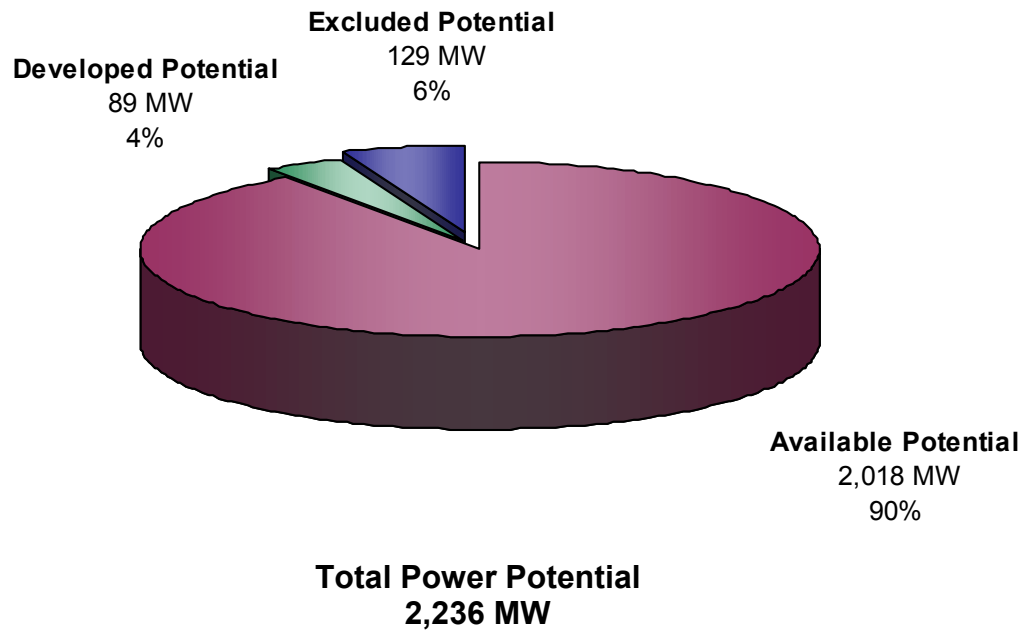3,112 MW
84%

Total Available Potential
3,687 MW

Figure B-83. Power class distribution of the available power potential (annual mean power) of water energy resources in Kentucky.

Microhydro Total
197 MW
Microhydro Developed & Excluded
2 MW

Microhydro Available
195 MW
(52% of total available)

Conventional Turbines Total
138 MW
Conventional Turbines Available
134 MW
(35% of total available)

Conventional Turbines Developed and Excluded
4 MW

Unconventional Systems Total
51 MW
Unconventional Systems Available
49 MW
(13% of total available)

Unconventional Systems Developed & Excluded
2 MW

Low Head/Low Power Totals
Total Potential: 386 MW
Developed: 2 MW
Excluded Potential: 6 MW
Available Potential: 378 MW
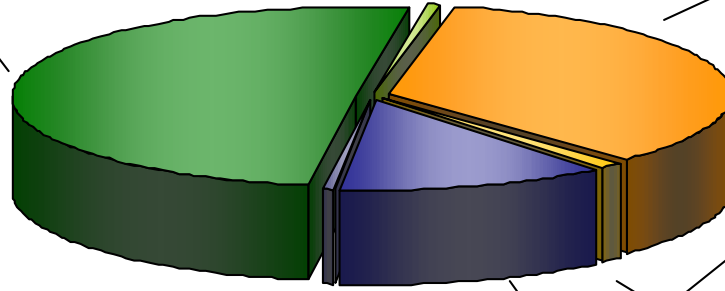
Figure B-84. Distribution of the low head/low power power potential (annual mean power) of water energy resources in Kentucky among three low head/low power hydropower technology classes.
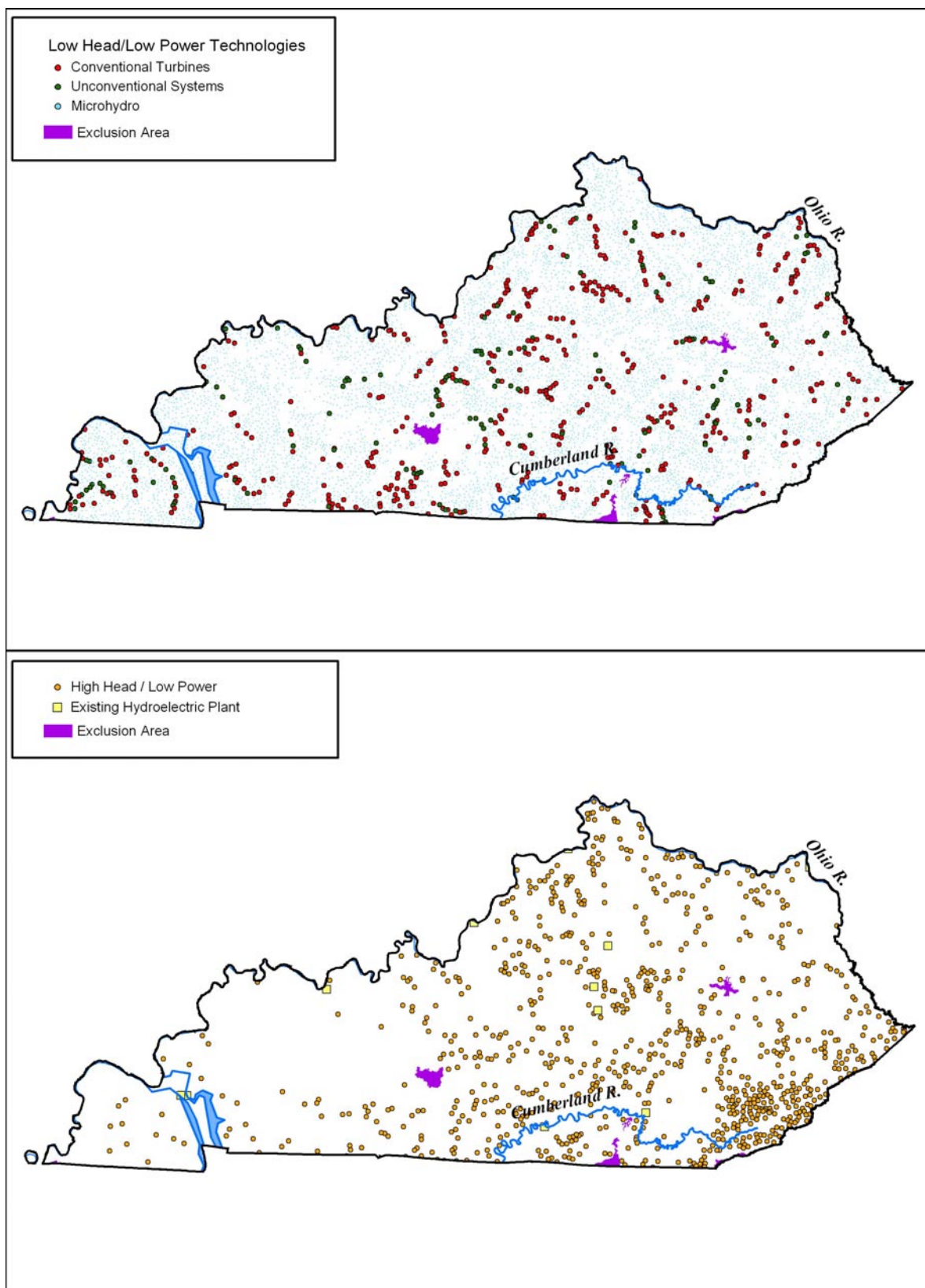
Figure B-85. Low head/low power and high head/low power water energy sites, and existing hydroelectric plants in Kentucky.

B.18 Louisiana
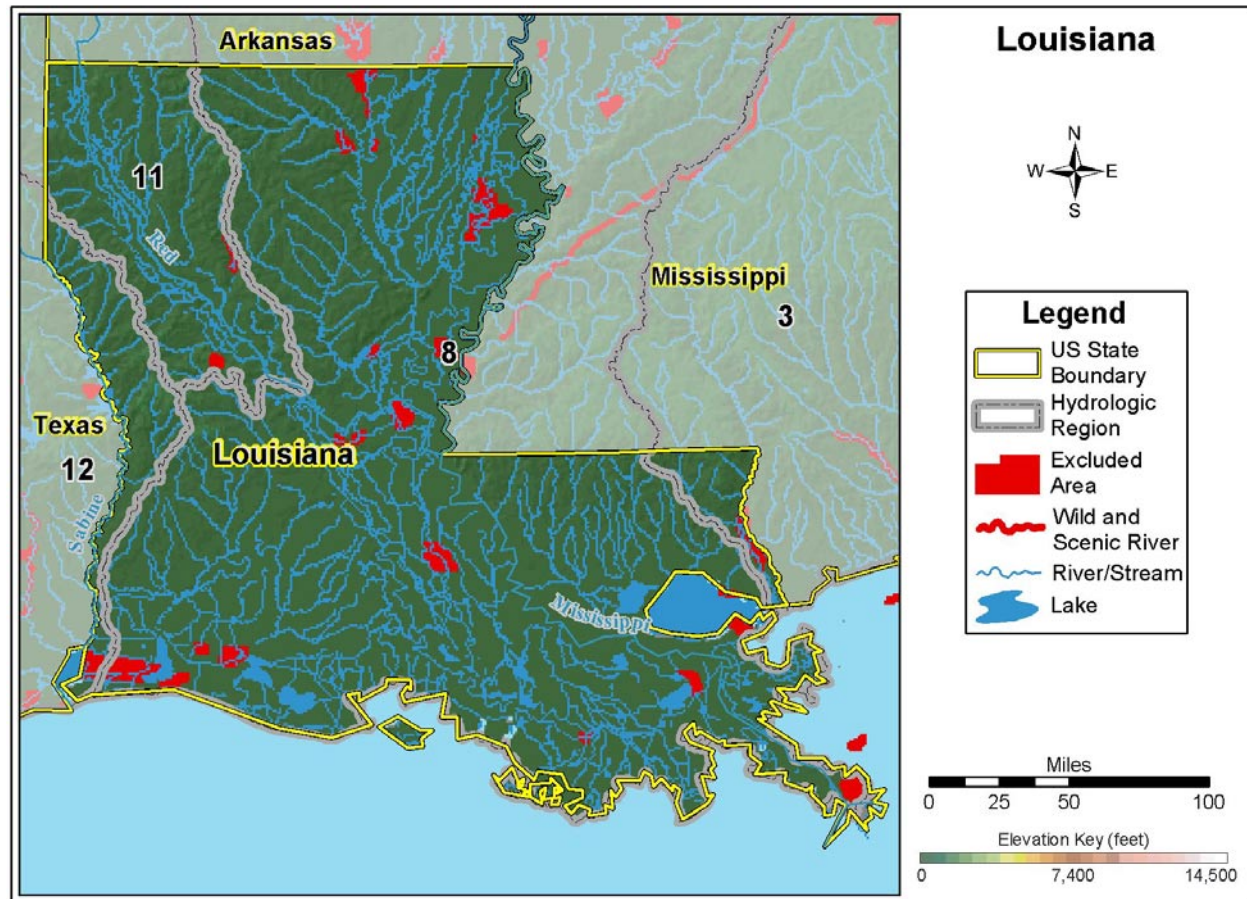
Figure B-86. Louisiana.

Table B-18. Summary of results of water energy resource assessment of Louisiana.

Annual Mean Power (MW)	Total	Developed	Excluded	Available[a]
TOTAL POWER	**2,236**	**89**	**129**	**2,018**
TOTAL HIGH POWER	**1,974**	**89**	**121**	**1,764**
High Head/High Power	10	0	0	10
Low Head/High Power	1,964	89	121	1,754
TOTAL LOW POWER	**262**	**0**	**8**	**254**
High Head/Low Power	11	0	0	11
Low Head/Low Power	251	0	8	243
Conventional Turbine	69	0	1	68
Unconventional Systems	77	0	5	72
Microhydro	105	0	2	103
a. No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.				

Excluded Potential
129 MW
6%

Developed Potential
89 MW
4%

Available Potential
2,018 MW
90%

Total Power Potential
2,236 MW

Figure B-87. Power category distribution of the total power potential (annual mean power) of water energy resources in Louisiana.

High Head/Low Power
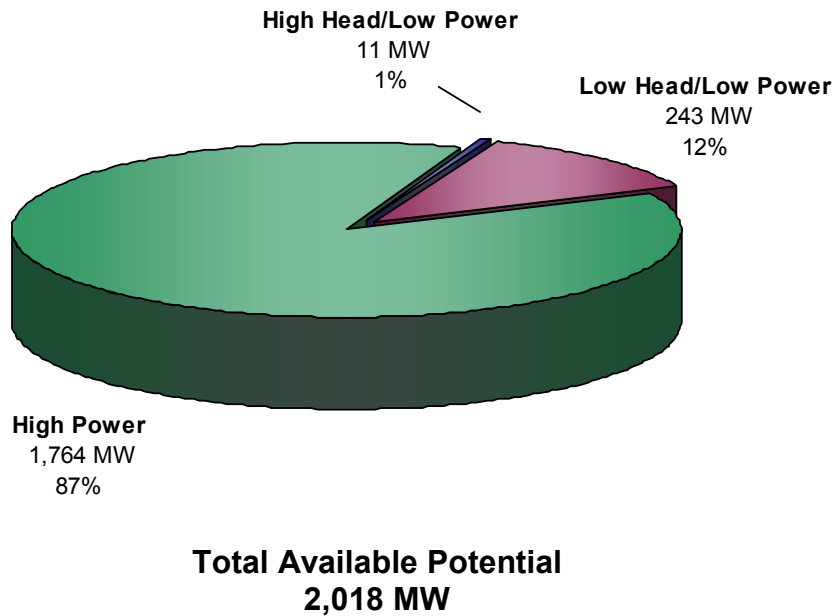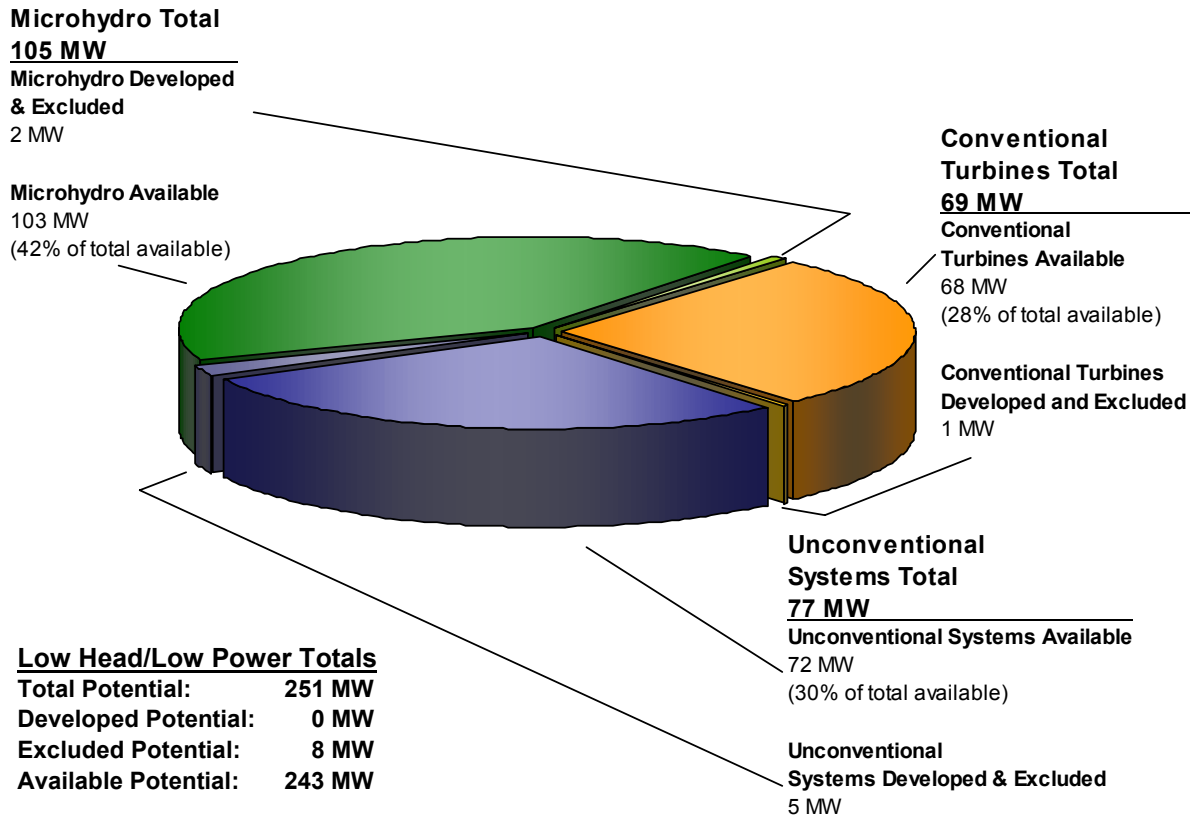11 MW
1%

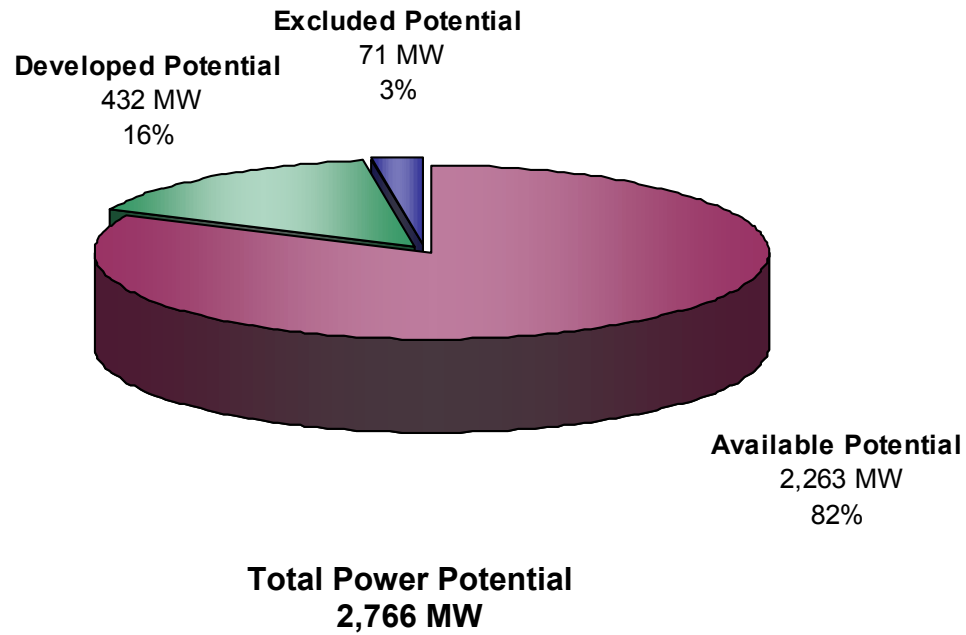**Low Head/Low Power**
243 MW
12%

High Power
1,764 MW
87%

Total Available Potential
2,018 MW

Figure B-88. Power class distribution of the available power potential (annual mean power) of water energy resources in Louisiana.

Microhydro Total
105 MW
Microhydro Developed & Excluded
2 MW

Microhydro Available
103 MW
(42% of total available)

Conventional Turbines Total
69 MW
Conventional Turbines Available
68 MW
(28% of total available)

Conventional Turbines Developed and Excluded
1 MW

Unconventional Systems Total
77 MW
Unconventional Systems Available
72 MW
(30% of total available)

Unconventional Systems Developed & Excluded
5 MW

Low Head/Low Power Totals	
Total Potential:	251 MW
Developed Potential:	0 MW
Excluded Potential:	8 MW
Available Potential:	243 MW

Figure B-89. Distribution of the low head/low power power potential (annual mean power) of water energy resources in Louisiana among three low head/low power hydropower technology classes.
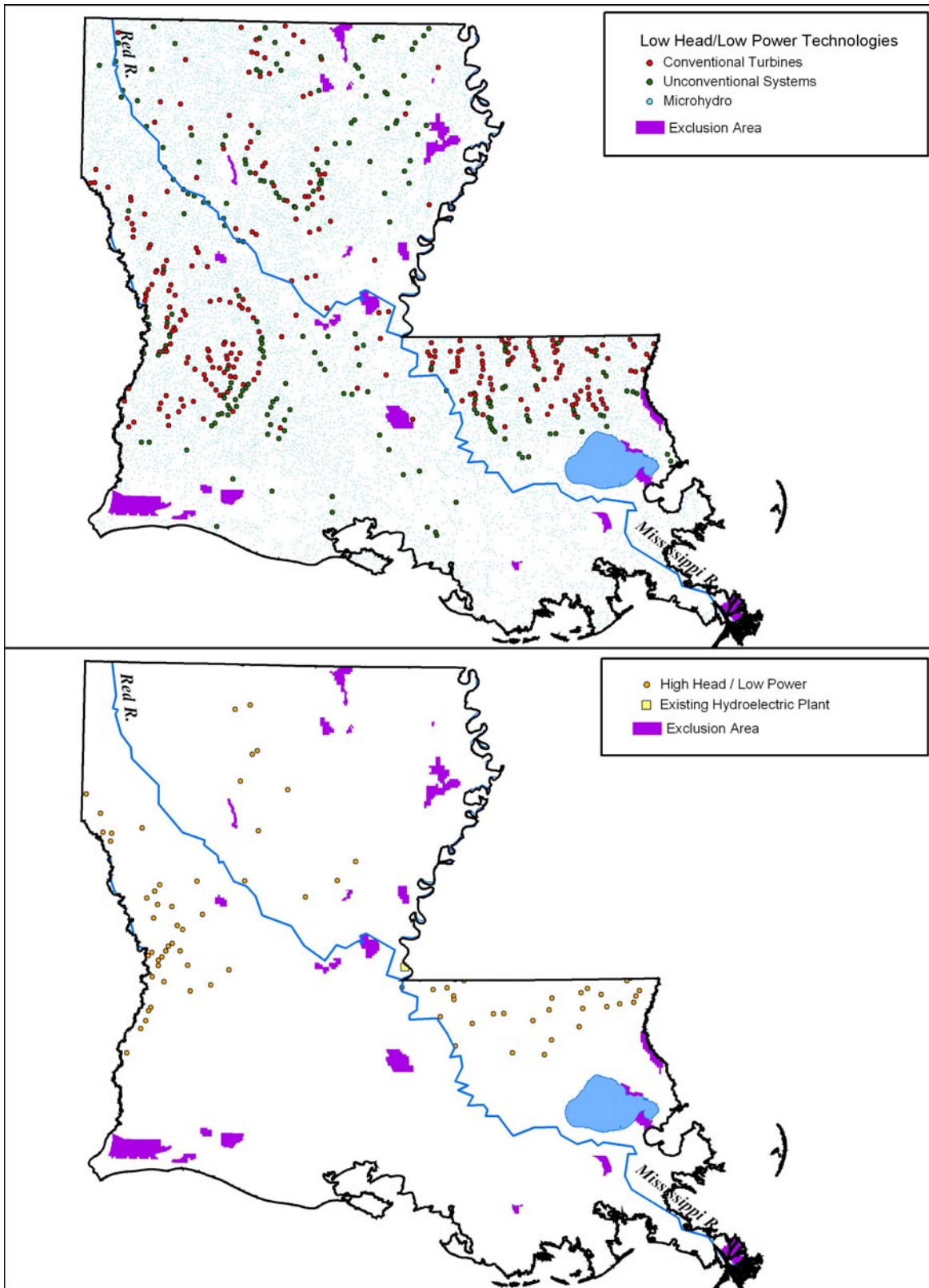
Figure B-90. Low head/low power and high head/low power water energy sites, and existing hydroelectric plants in Louisiana.

B.19 Maine
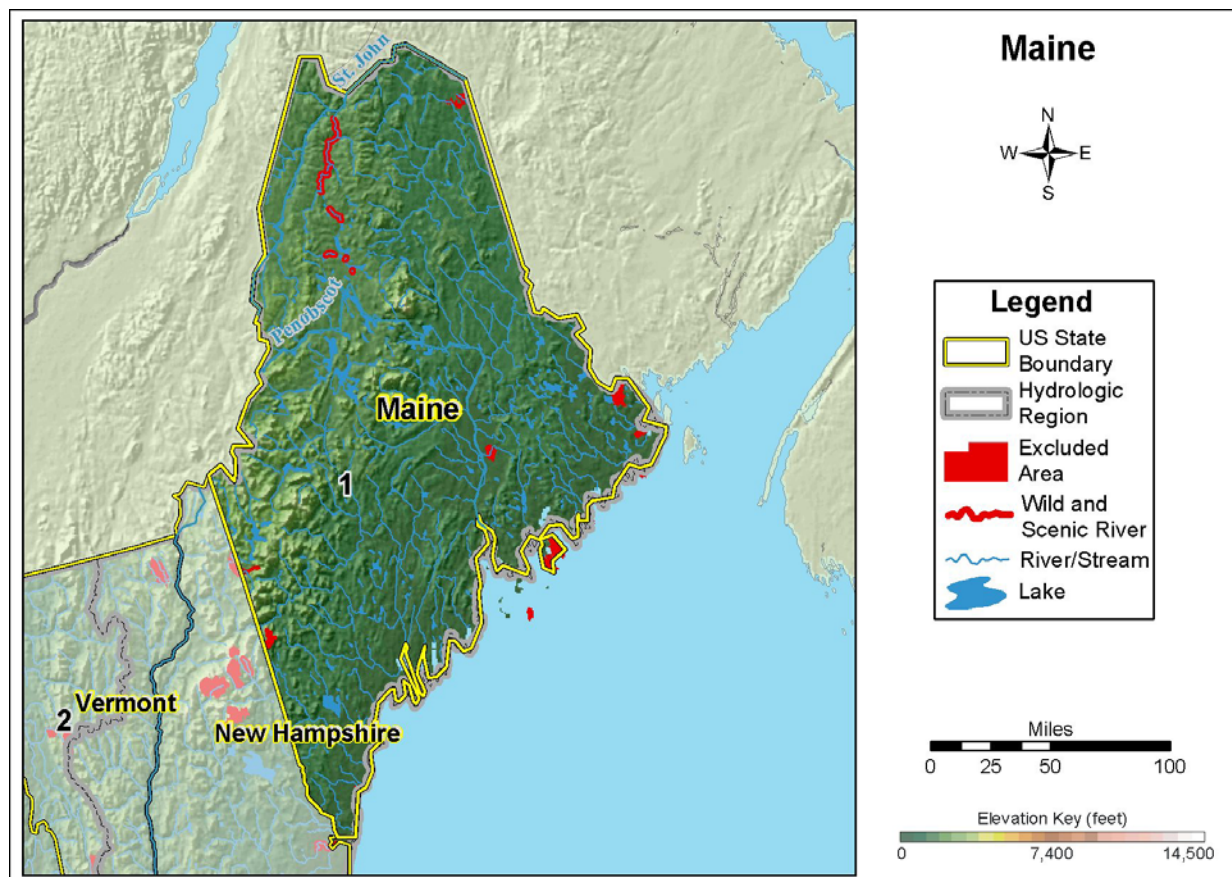
Figure B-91. Maine.

Table B-19. Summary of results of water energy resource assessment of Maine.

Annual Mean Power (MW)	Total	Developed	Excluded	Available[a]
TOTAL POWER	**2,766**	**432**	**71**	**2,263**
TOTAL HIGH POWER	**1,968**	**414**	**43**	**1,511**
High Head/High Power	1,353	301	26	1,026
Low Head/High Power	615	113	17	485
TOTAL LOW POWER	**798**	**18**	**28**	**752**
High Head/Low Power	488	5	16	467
Low Head/Low Power	310	13	12	285
Conventional Turbine	119	12	3	104
Unconventional Systems	44	0	5	39
Microhydro	147	1	4	142
a. No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.				

Excluded Potential
71 MW
3%

Developed Potential
432 MW
16%

Available Potential
2,263 MW
82%

Total Power Potential
2,766 MW

Figure B-92. Power category distribution of the total power potential (annual mean power) of water energy resources in Maine.
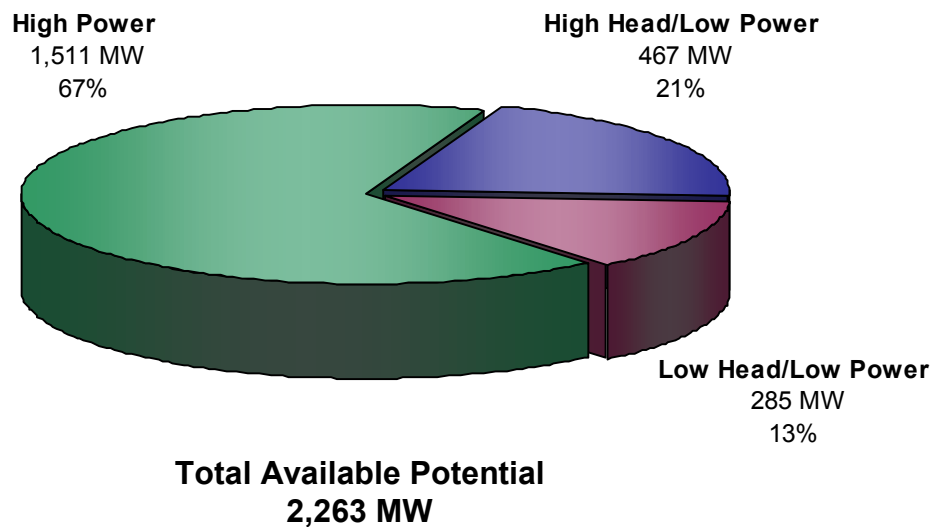
High Power
1,511 MW
67%

High Head/Low Power
467 MW
21%

Low Head/Low Power
285 MW
13%

Total Available Potential
2,263 MW

Figure B-93. Power class distribution of the available power potential (annual mean power) of water energy resources in Maine.

Microhydro Total
147 MW
Microhydro Developed
& Excluded
5 MW

Microhydro Available
142 MW
(50% of total available)

Conventional
Turbines Total
119 MW
Conventional
Turbines Available
104 MW
(36% of total available)

Conventional Turbines
Developed and Excluded
15 MW

Unconventional
Systems Total
44 MW
Unconventional Systems Available
39 MW
(14% of total available)

Unconventional
Systems Developed & Excluded
5 MW

Low Head/Low Power Totals
Total Potential:	**67 MW**
Developed Potential:	**0 MW**
Excluded Potential:	**8 MW**
Available Potential:	**59 MW**
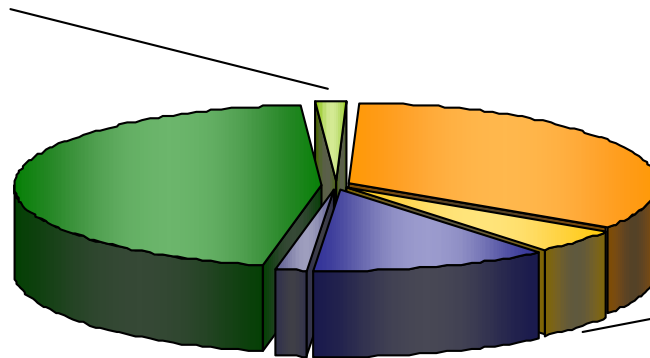
Figure B-94. Distribution of the low head/low power power potential (annual mean power) of water energy resources in Maine among three low head/low power hydropower technology classes.
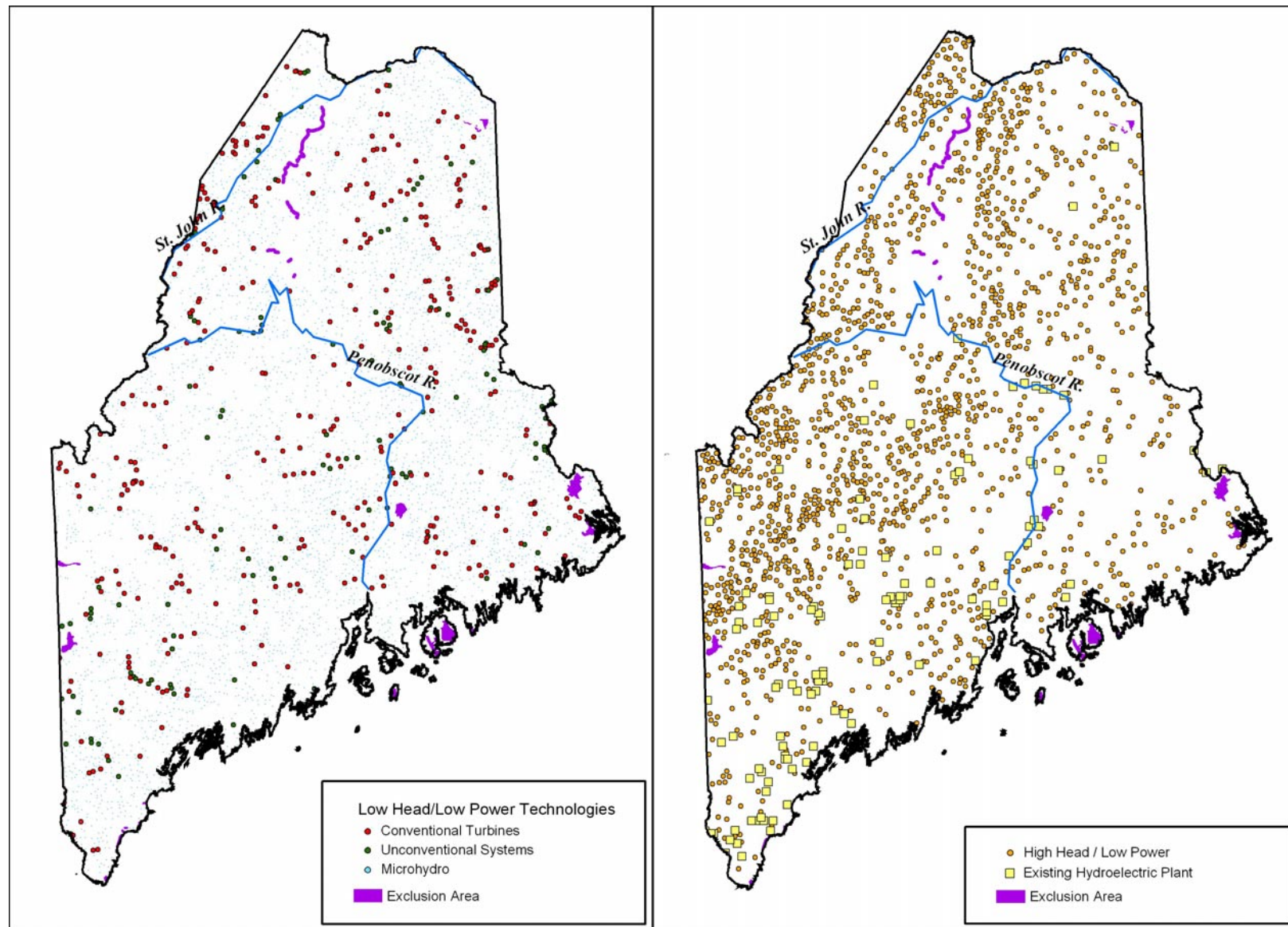
Figure B-95. Low head/low power and high head/low power water energy sites, and existing hydroelectric plants in Maine.
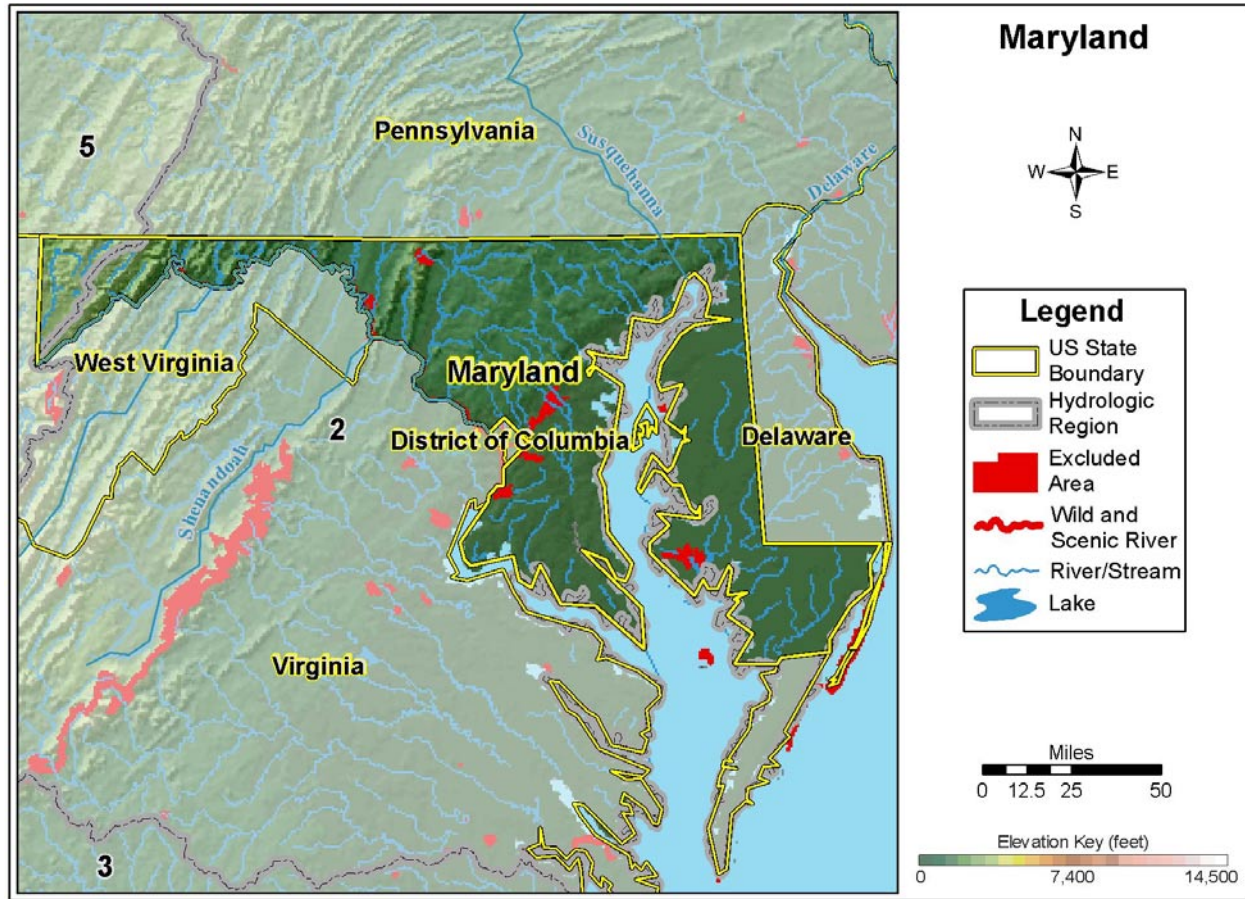
B.20 Maryland

Figure B-96. Maryland.

Table B-20. Summary of results of water energy resource assessment of Maryland.

Annual Mean Power (MW)	Total	Developed	Excluded	Available[a]
TOTAL POWER	845	203	298	344
TOTAL HIGH POWER	695	202	282	211
High Head/High Power	521	202	145	174
Low Head/High Power	174	0	137	37
TOTAL LOW POWER	150	1	16	133
High Head/Low Power	83	1	8	74
Low Head/Low Power	67	0	8	59
Conventional Turbine	26	0	5	21
Unconventional Systems	4	0	1	3
Microhydro	37	0	2	35

a. No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.
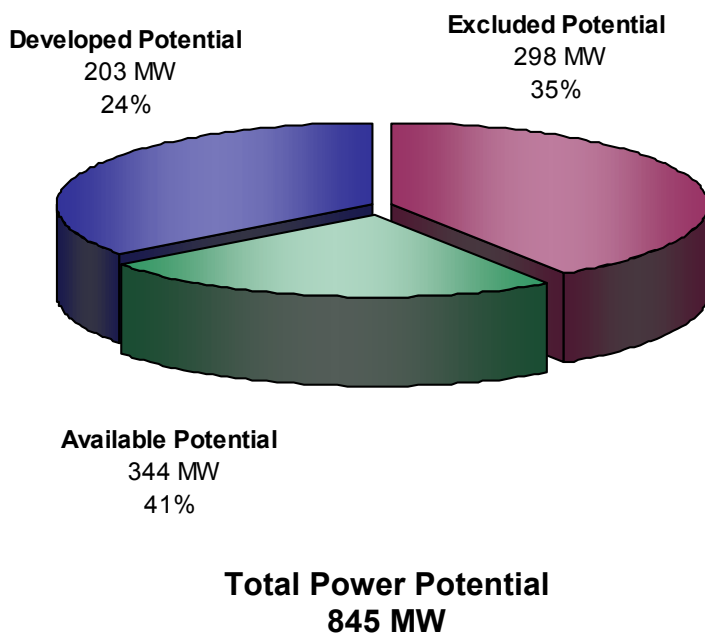
B-83

Developed Potential
203 MW
24%

Excluded Potential
298 MW
35%

Available Potential
344 MW
41%

Total Power Potential
845 MW

Figure B-97. Power category distribution of the total power potential (annual mean power) of water energy resources in Maryland.

High Power
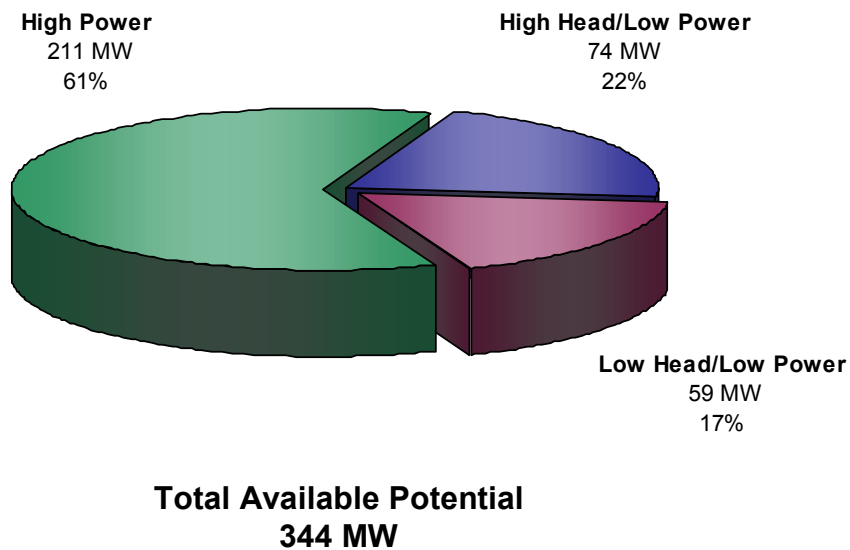211 MW
61%

High Head/Low Power
74 MW
22%

Low Head/Low Power
59 MW
17%

Total Available Potential
344 MW

Figure B-98. Power class distribution of the available power potential (annual mean power) of water energy resources in Maryland.

Microhydro Total
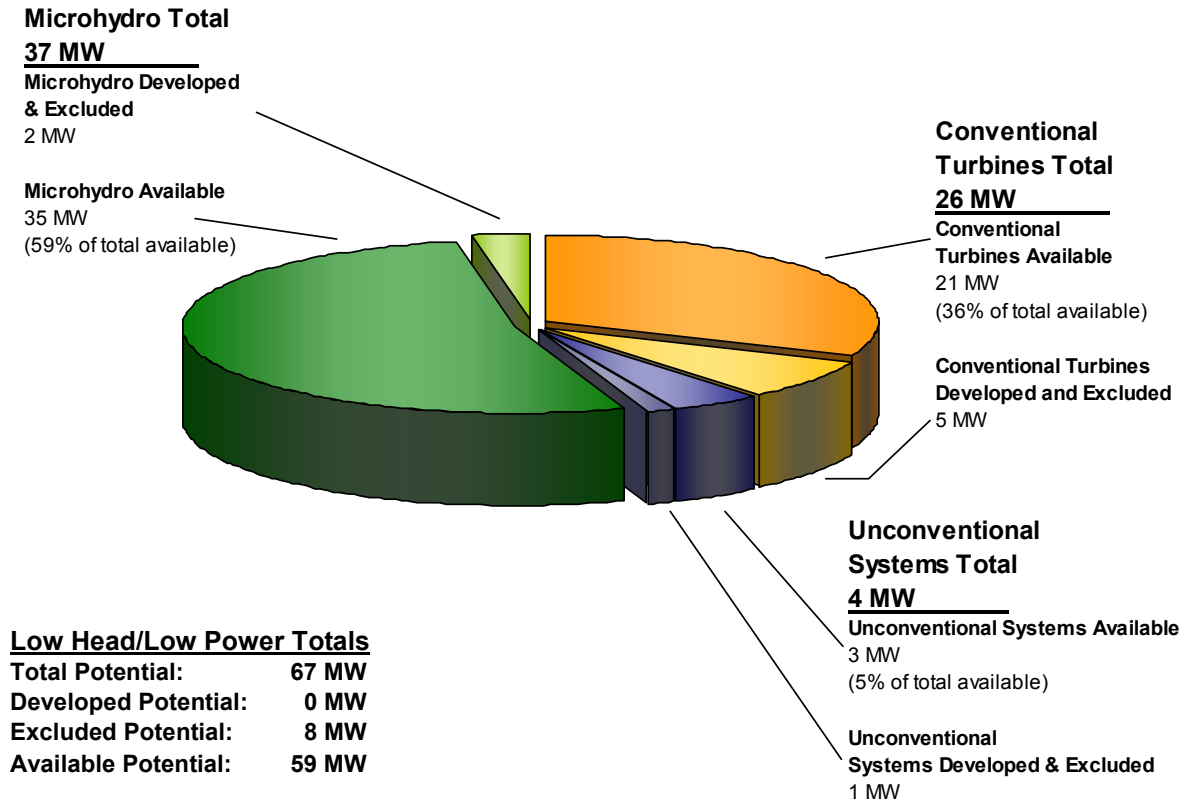**37 MW**
Microhydro Developed
& Excluded
2 MW

Microhydro Available
35 MW
(59% of total available)

**Conventional
Turbines Total
26 MW**
Conventional
Turbines Available
21 MW
(36% of total available)

Conventional Turbines
Developed and Excluded
5 MW

**Unconventional
Systems Total
4 MW**
Unconventional Systems Available
3 MW
(5% of total available)

Unconventional
Systems Developed & Excluded
1 MW

Low Head/Low Power Totals
Total Potential:	**67 MW**
Developed Potential:	**0 MW**
Excluded Potential:	**8 MW**
Available Potential:	**59 MW**

Maryland

Figure B-99. Distribution of the low head/low power power potential (annual mean power) of water energy resources in Maryland among three low head/low power hydropower technology classes.
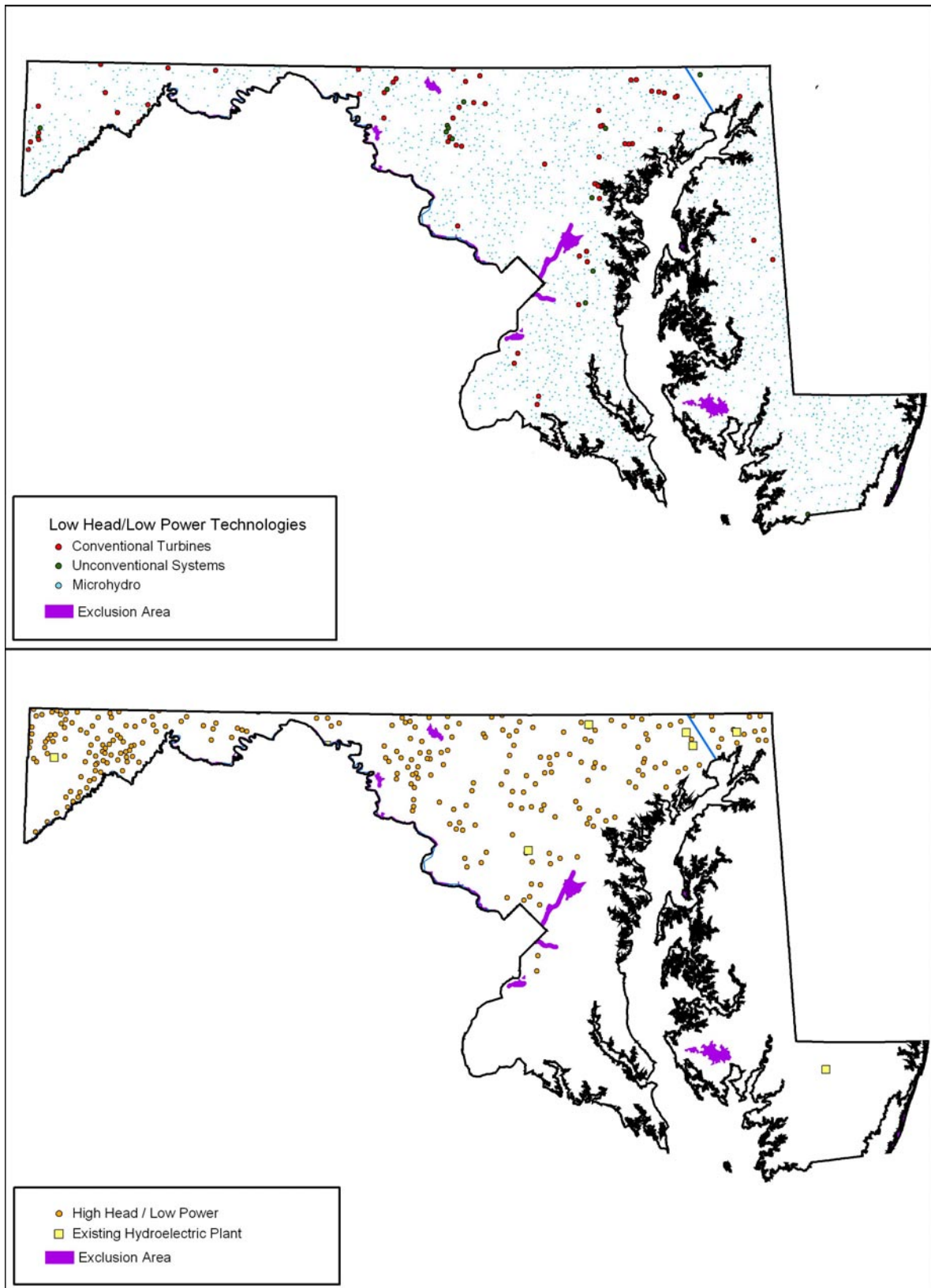
Figure B-100. Low head/low power and high head/low power water energy sites, and existing hydroelectric plants in Maryland.
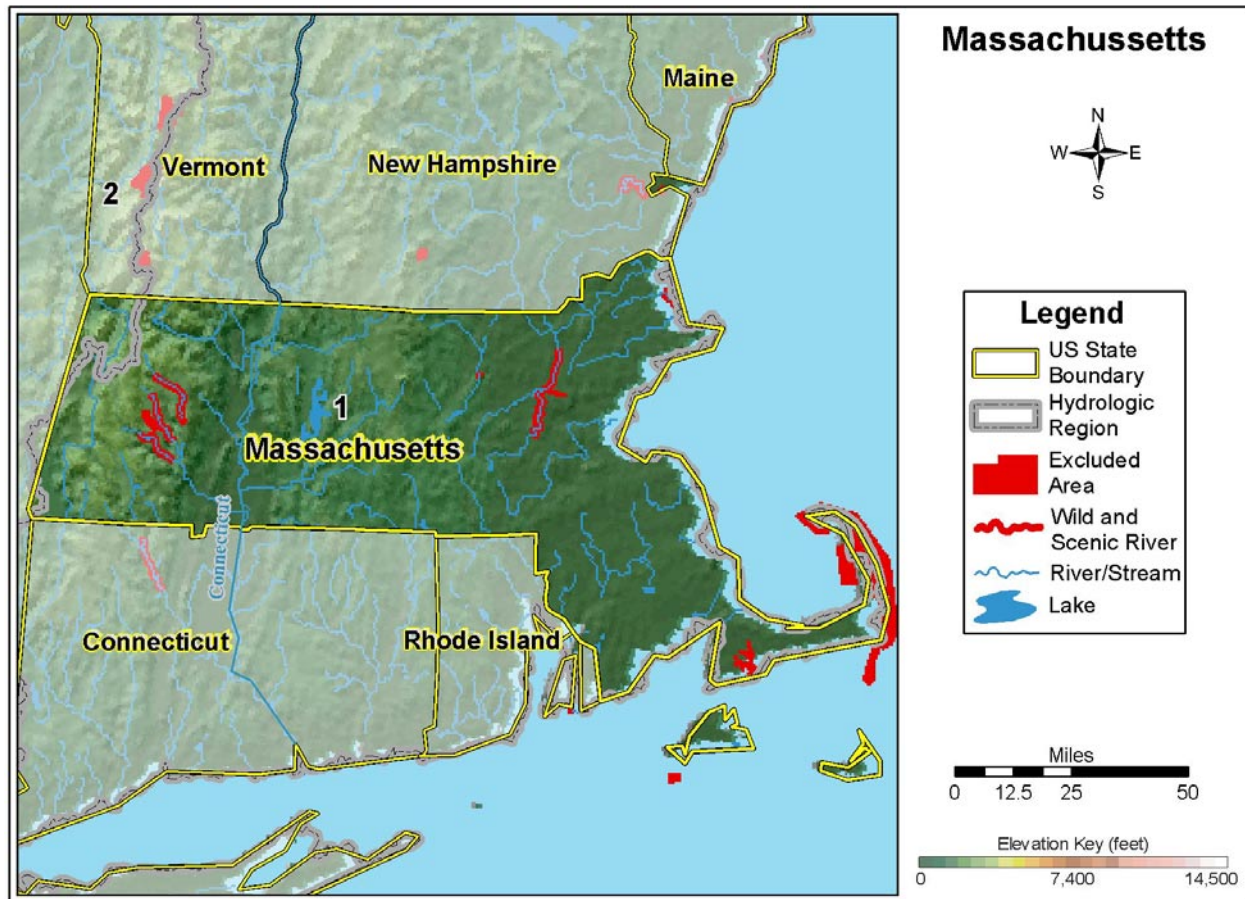
B.21 Massachusetts

Figure B-101. Massachusetts.

Table B-21. Summary of results of water energy resource assessment of Massachusetts.

| Annual Mean Power (MW)	Total	Developed	Excluded	Available[a]
TOTAL POWER	**675**	**126**	**29**	**520**
TOTAL HIGH POWER	**478**	**109**	**11**	**358**
High Head/High Power	377	106	11	260
Low Head/High Power	101	3	0	98
TOTAL LOW POWER	**197**	**17**	**18**	**162**
High Head/Low Power	127	10	15	102
Low Head/Low Power	70	7	3	60
Conventional Turbine	28	6	2	20
Unconventional Systems	6	0	0	6
Microhydro	36	1	1	34
a. No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.				

Excluded Potential
29 MW
4%

Developed Potential
126 MW
19%

Available Potential
520 MW
77%

**Total Power Potential
675 MW**
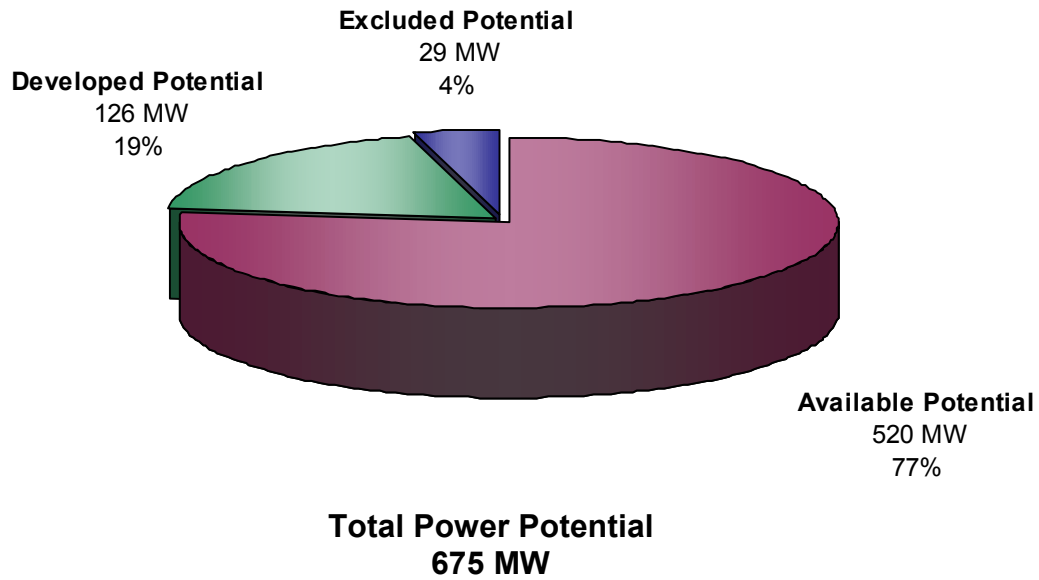
Figure B-102. Power category distribution of the total power potential (annual mean power) of water energy resources in Massachusetts.
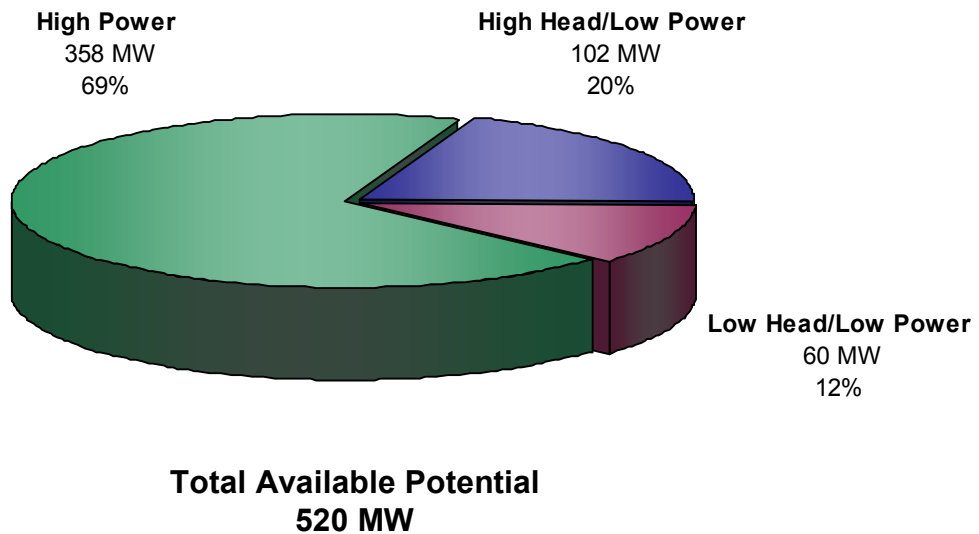
High Power
358 MW
69%

High Head/Low Power
102 MW
20%

Low Head/Low Power
60 MW
12%

**Total Available Potential
520 MW**

Figure B-103. Power class distribution of the available power potential (annual mean power) of water energy resources in Massachusetts.

Microhydro Total
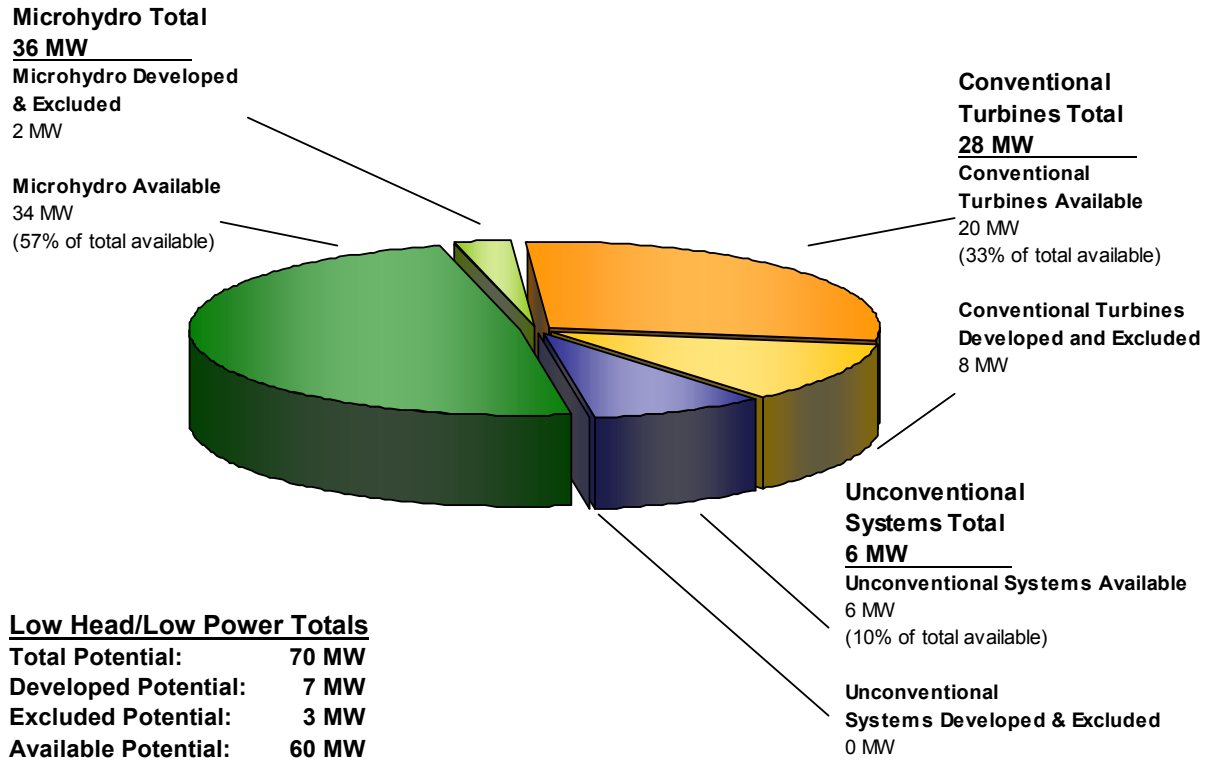**36 MW**
Microhydro Developed
& Excluded
2 MW

Microhydro Available
34 MW
(57% of total available)

Conventional
Turbines Total
28 MW
Conventional
Turbines Available
20 MW
(33% of total available)

Conventional Turbines
Developed and Excluded
8 MW

Unconventional
Systems Total
6 MW
Unconventional Systems Available
6 MW
(10% of total available)

Unconventional
Systems Developed & Excluded
0 MW

Low Head/Low Power Totals
Total Potential:	**70 MW**
Developed Potential:	**7 MW**
Excluded Potential:	**3 MW**
Available Potential:	**60 MW**

Figure B-104. Distribution of the low head/low power power potential (annual mean power) of water energy resources in Massachusetts among three low head/low power hydropower technology classes.
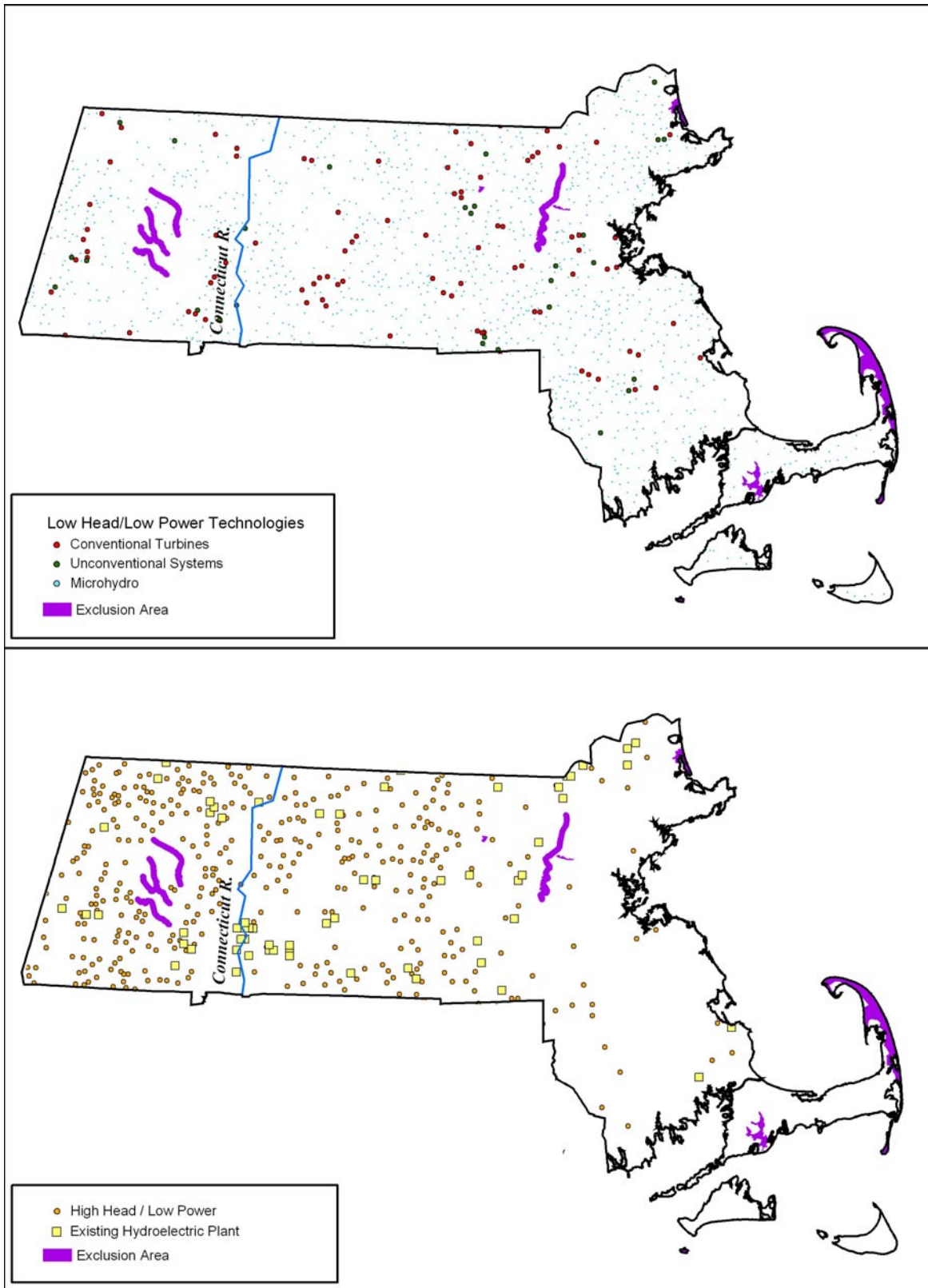
Figure B-105. Low head/low power and high head/low power water energy sites, and existing hydroelectric plants in Massachusetts.
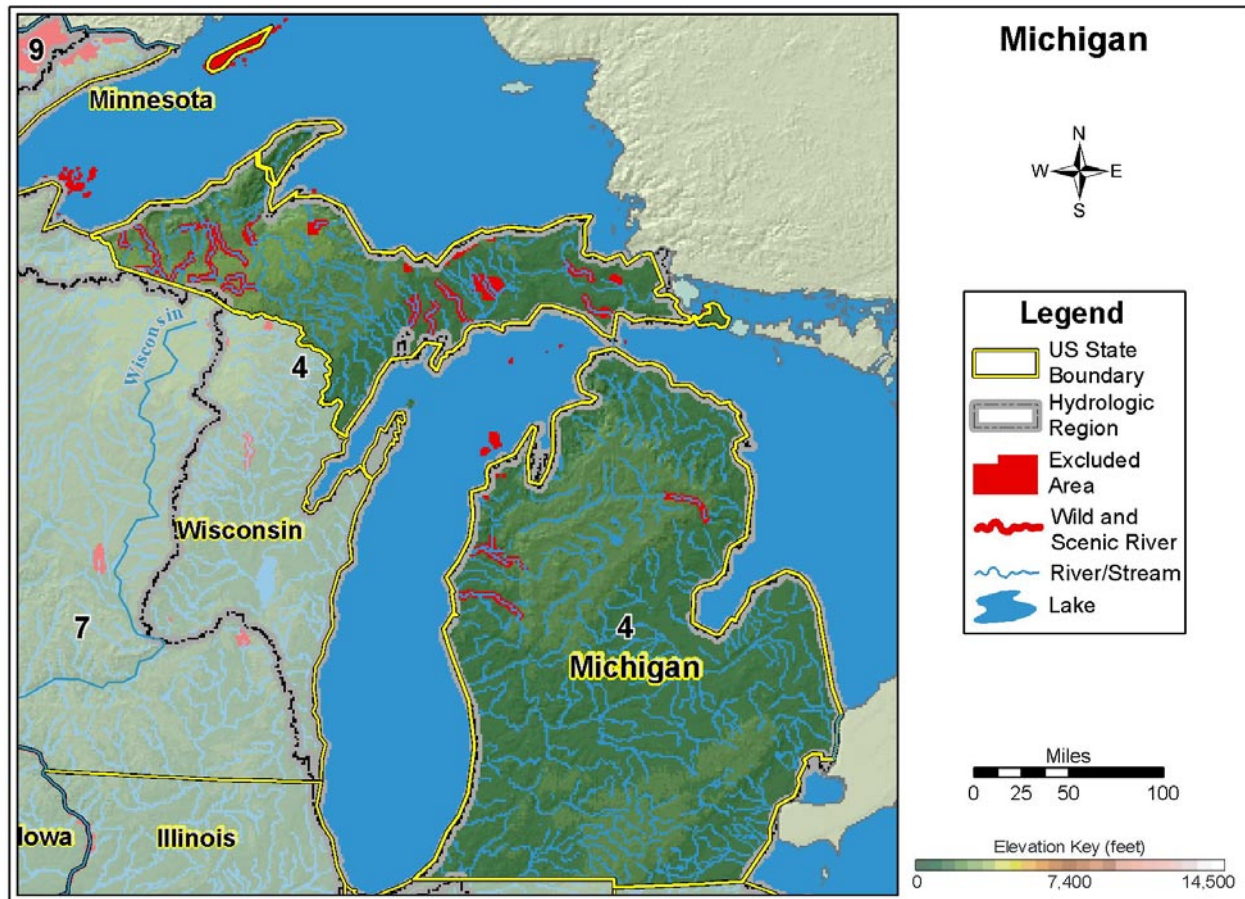
B.22 Michigan

Figure B-106. Michigan.

Table B-22. Summary of results of water energy resource assessment of Michigan.

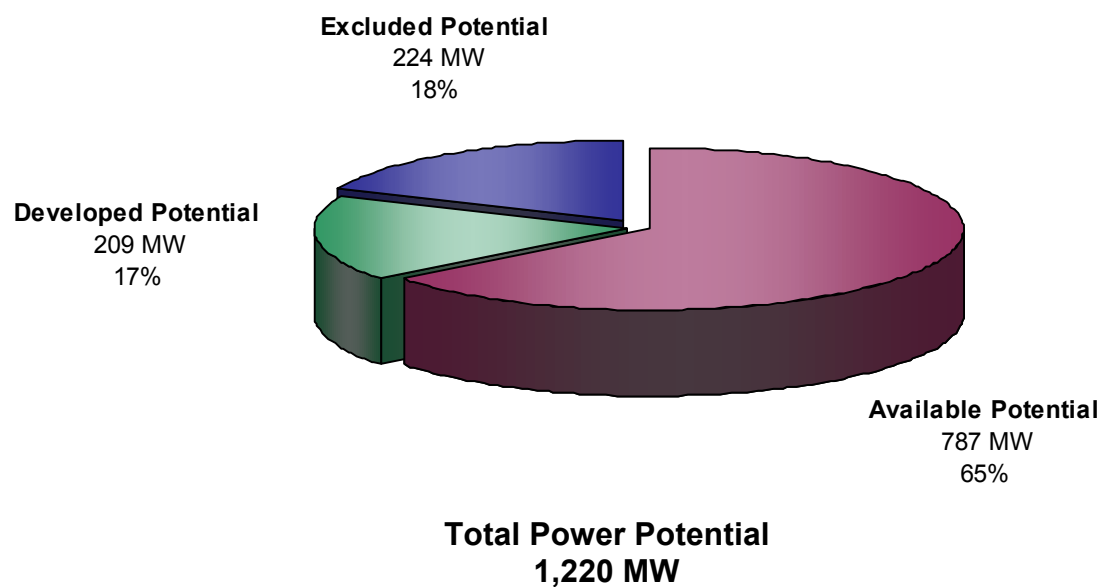| Annual Mean Power (MW)	Total	Developed	Excluded	Available[a]
TOTAL POWER	**1,220**	**209**	**224**	**787**
TOTAL HIGH POWER	**520**	**185**	**141**	**194**
High Head/High Power	360	100	123	137
Low Head/High Power	160	85	18	57
TOTAL LOW POWER	**700**	**24**	**83**	**593**
High Head/Low Power	223	10	33	180
Low Head/Low Power	477	14	50	413
Conventional Turbine	193	14	27	152
Unconventional Systems	60	0	9	51
Microhydro	224	0	14	210
a. No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.				

Excluded Potential
224 MW
18%

Developed Potential
209 MW
17%

Available Potential
787 MW
65%

Total Power Potential
1,220 MW

Figure B-107. Power category distribution of the total power potential (annual mean power) of water energy resources in Michigan.
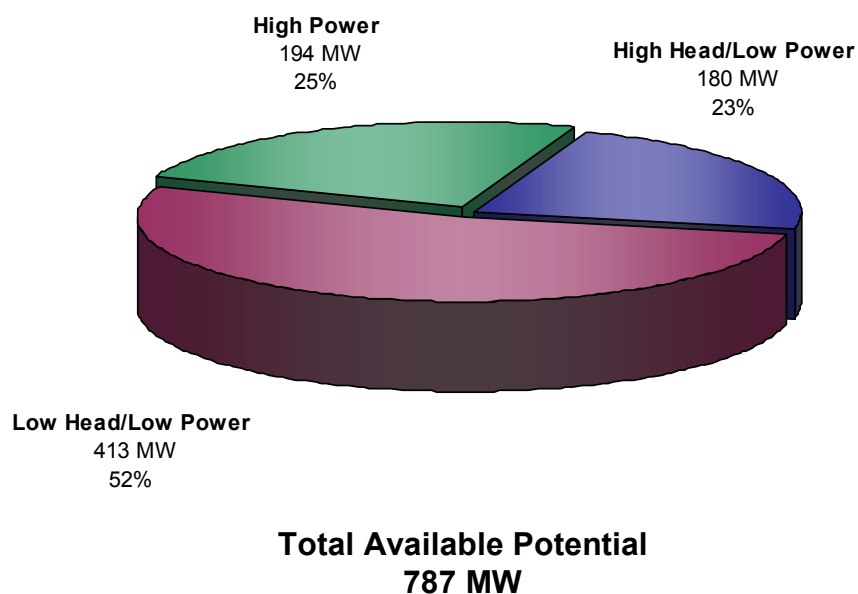
High Power
194 MW
25%

High Head/Low Power
180 MW
23%

Low Head/Low Power
413 MW
52%

Total Available Potential
787 MW

Figure B-108. Power class distribution of the available power potential (annual mean power) of water energy resources in Michigan.

Microhydro Total
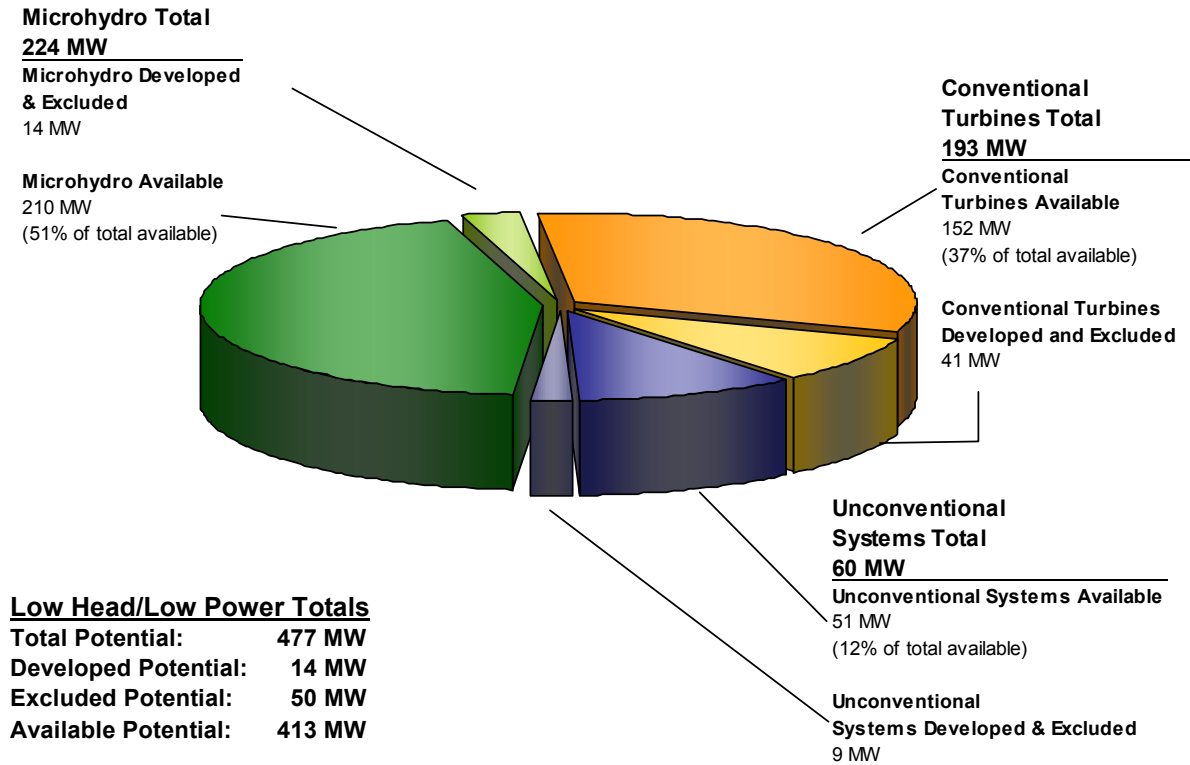**224 MW**
Microhydro Developed
& Excluded
14 MW

Microhydro Available
210 MW
(51% of total available)

Conventional
Turbines Total
193 MW
Conventional
Turbines Available
152 MW
(37% of total available)

Conventional Turbines
Developed and Excluded
41 MW

Unconventional
Systems Total
60 MW
Unconventional Systems Available
51 MW
(12% of total available)

Unconventional
Systems Developed & Excluded
9 MW

Low Head/Low Power Totals
Total Potential: 477 MW
Developed Potential: 14 MW
Excluded Potential: 50 MW
Available Potential: 413 MW

Figure B-109. Distribution of the low head/low power power potential (annual mean power) of water energy resources in Michigan among three low head/low power hydropower technology classes.

Low Head/Low Power Technologies
- Conventional Turbines
- Unconventional Systems
- Microhydro
- Exclusion Area

- High Head / Low Power
- Existing Hydroelectric Plant
- Exclusion Area
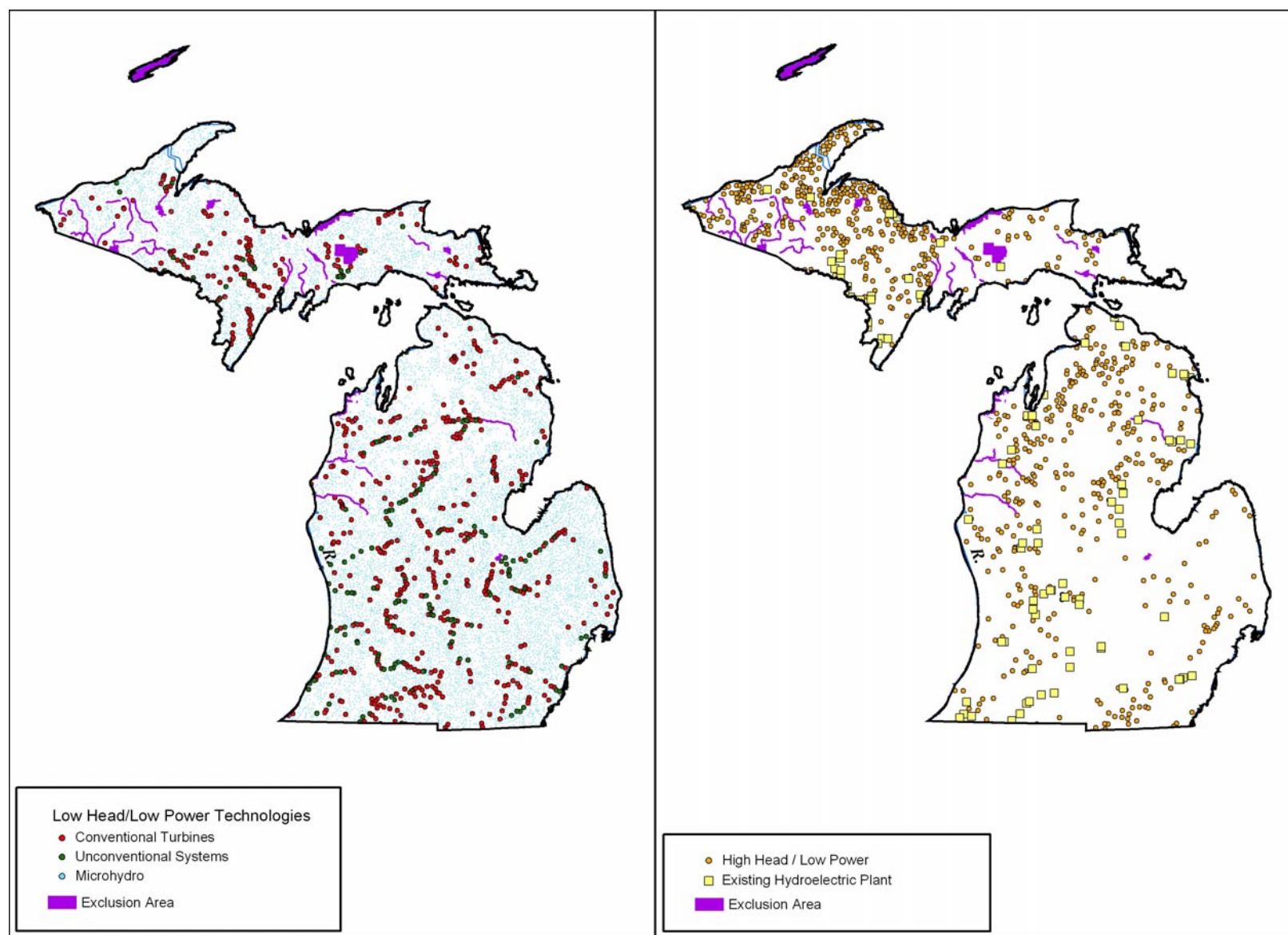
Figure B-110. Low head/low power and high head/low power water energy sites, and existing hydroelectric plants in Michigan.
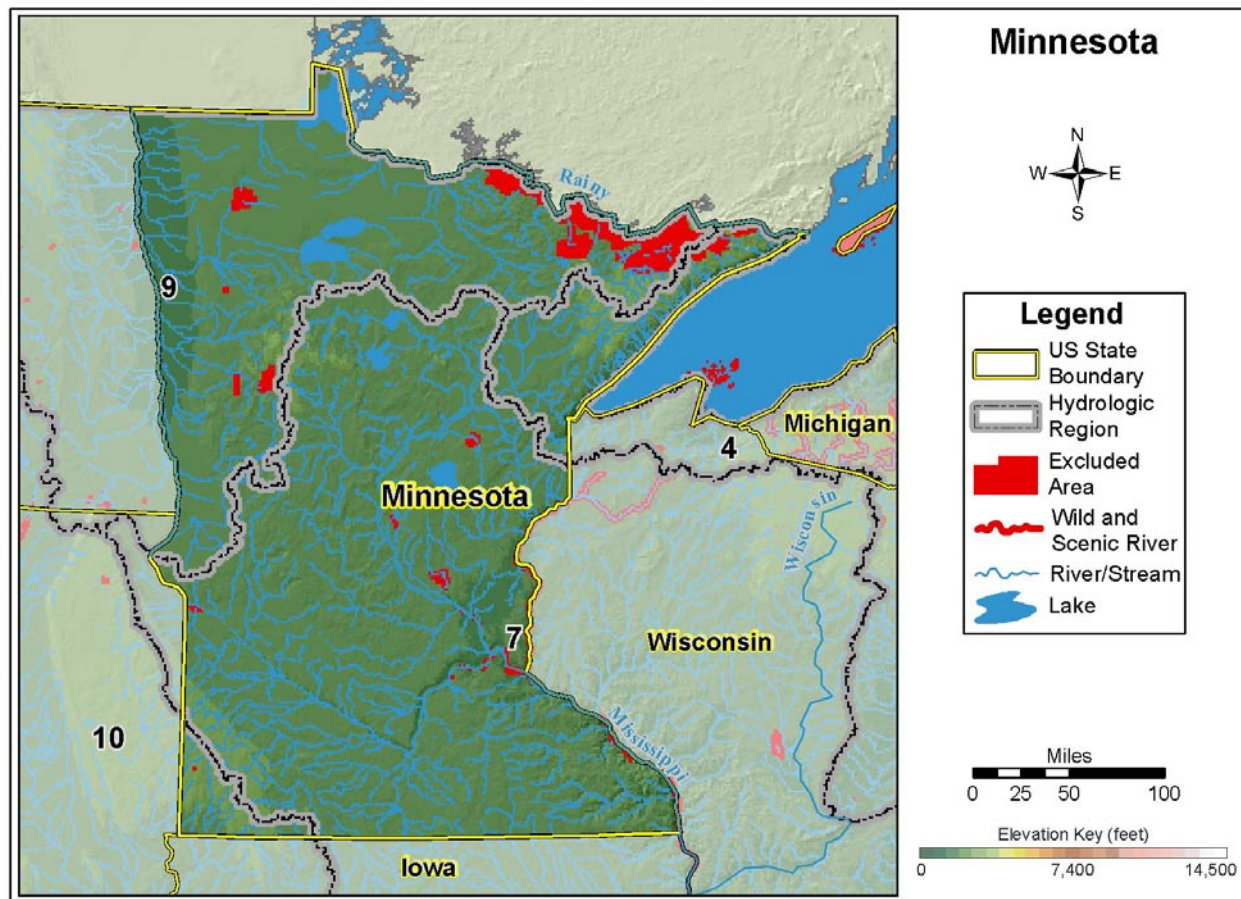
B.23 Minnesota

Figure B-111. Minnesota.

Table B-23. Summary of results of water energy resource assessment of Minnesota.

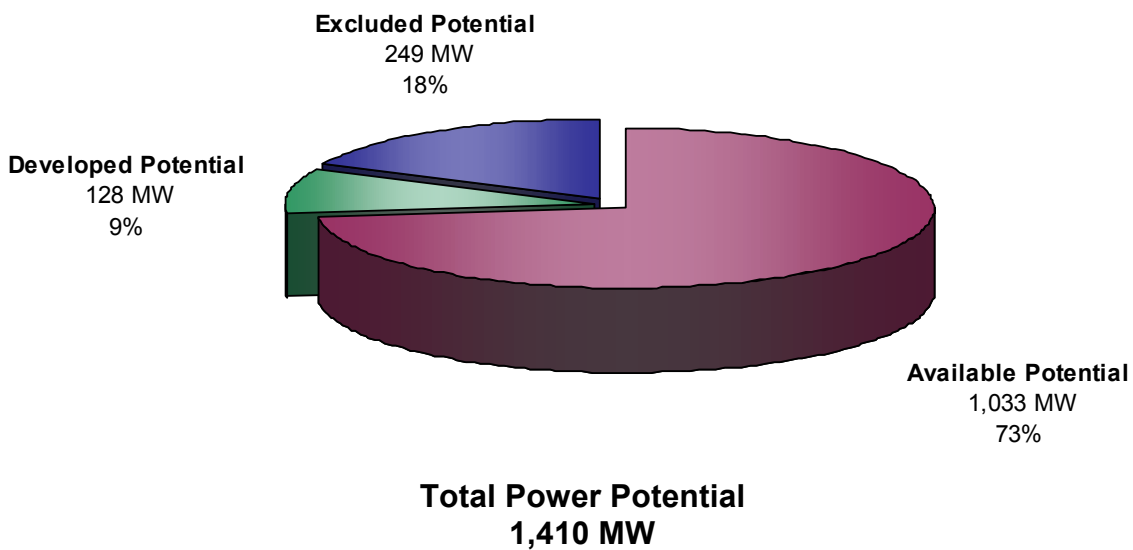| Annual Mean Power (MW)	Total	Developed	Excluded	Available[a]
TOTAL POWER	**1,410**	**128**	**249**	**1,033**
TOTAL HIGH POWER	**760**	**123**	**192**	**445**
High Head/High Power	409	101	73	235
Low Head/High Power	351	22	119	210
TOTAL LOW POWER	**650**	**5**	**57**	**588**
High Head/Low Power	196	3	27	166
Low Head/Low Power	454	2	30	422
Conventional Turbine	152	2	11	139
Unconventional Systems	78	0	6	72
Microhydro	224	0	13	211
a. No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.				

Excluded Potential
249 MW
18%

Developed Potential
128 MW
9%

Available Potential
1,033 MW
73%

Total Power Potential
1,410 MW

Figure B-112. Power category distribution of the total power potential (annual mean power) of water energy resources in Minnesota.
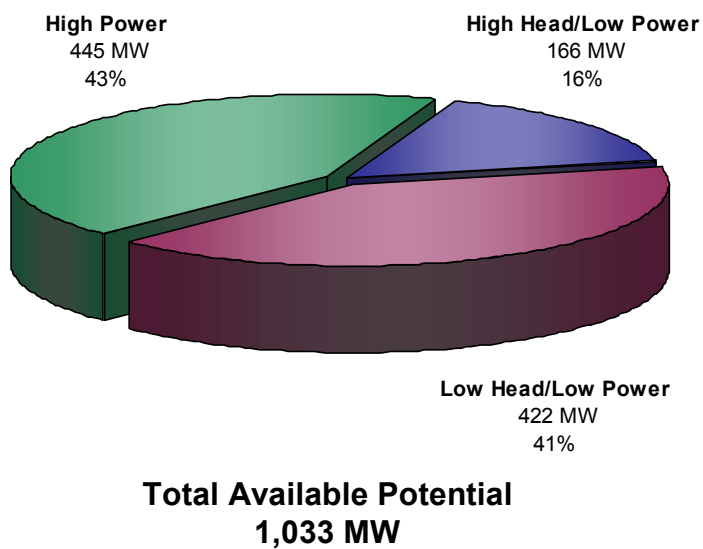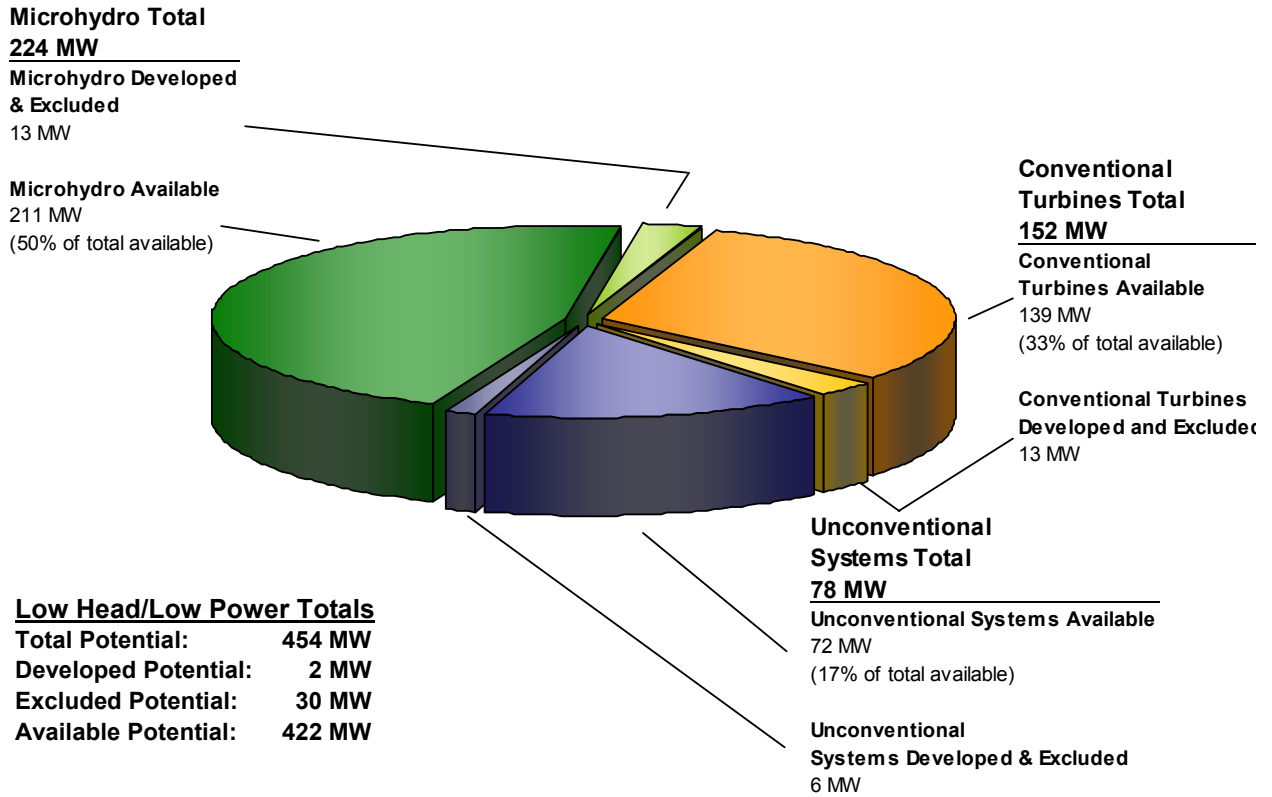

High Power
445 MW
43%

High Head/Low Power
166 MW
16%

Low Head/Low Power
422 MW
41%

Total Available Potential
1,033 MW

Figure B-113. Power class distribution of the available power potential (annual mean power) of water energy resources in Minnesota.

**Microhydro Total
224 MW**
**Microhydro Developed
& Excluded**
13 MW

Microhydro Available
211 MW
(50% of total available)

**Conventional
Turbines Total
152 MW**
**Conventional
Turbines Available**
139 MW
(33% of total available)

**Conventional Turbines
Developed and Excluded**
13 MW

**Unconventional
Systems Total
78 MW**
Unconventional Systems Available
72 MW
(17% of total available)

**Unconventional
Systems Developed & Excluded**
6 MW

Low Head/Low Power Totals
Total Potential:	**454 MW**
Developed Potential:	**2 MW**
Excluded Potential:	**30 MW**
Available Potential:	**422 MW**

Figure B-114. Distribution of the low head/low power power potential (annual mean power) of water energy resources in Minnesota among three low head/low power hydropower technology classes.
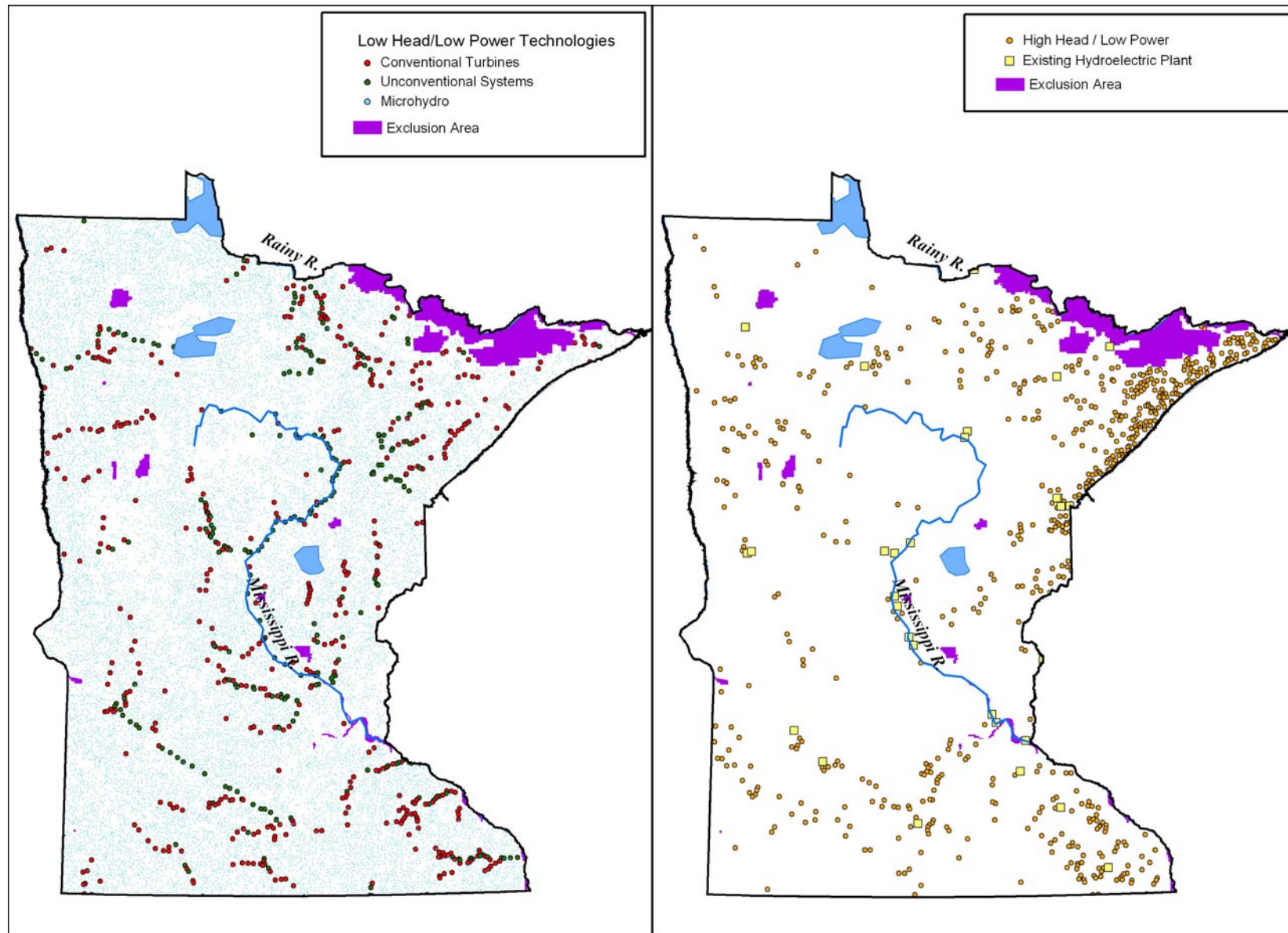
Figure B-115. Low head/low power and high head/low power water energy sites, and existing hydroelectric plants in Minnesota.
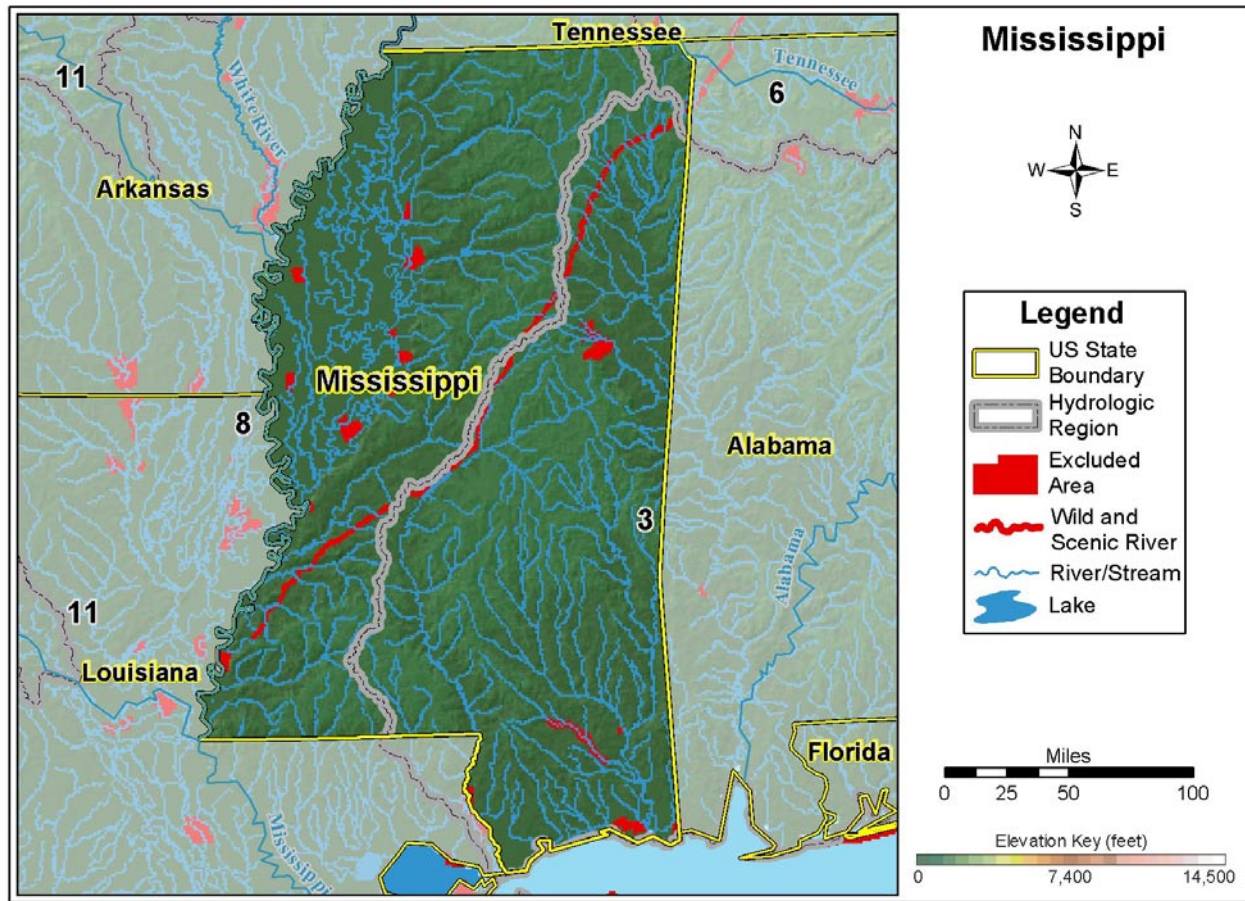
B.24 Mississippi

Figure B-116. Mississippi.

Table B-24. Summary of results of water energy resource assessment of Mississippi.

| Annual Mean Power (MW)	Total	Developed	Excluded	Available[a]
TOTAL POWER	**4,496**	**0**	**450**	**4,046**
TOTAL HIGH POWER	**3,899**	**0**	**422**	**3,477**
High Head/High Power	62	0	2	60
Low Head/High Power	3,837	0	420	3,417
TOTAL LOW POWER	**597**	**0**	**28**	**569**
High Head/Low Power	63	0	2	61
Low Head/Low Power	534	0	26	508
Conventional Turbine	184	0	12	172
Unconventional Systems	133	0	6	127
Microhydro	217	0	8	209
a. No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.				

Developed Potential
0 MW
0%

Excluded Potential
450 MW
10%

Available Potential
4,046 MW
90%

Total Power Potential
4,496 MW
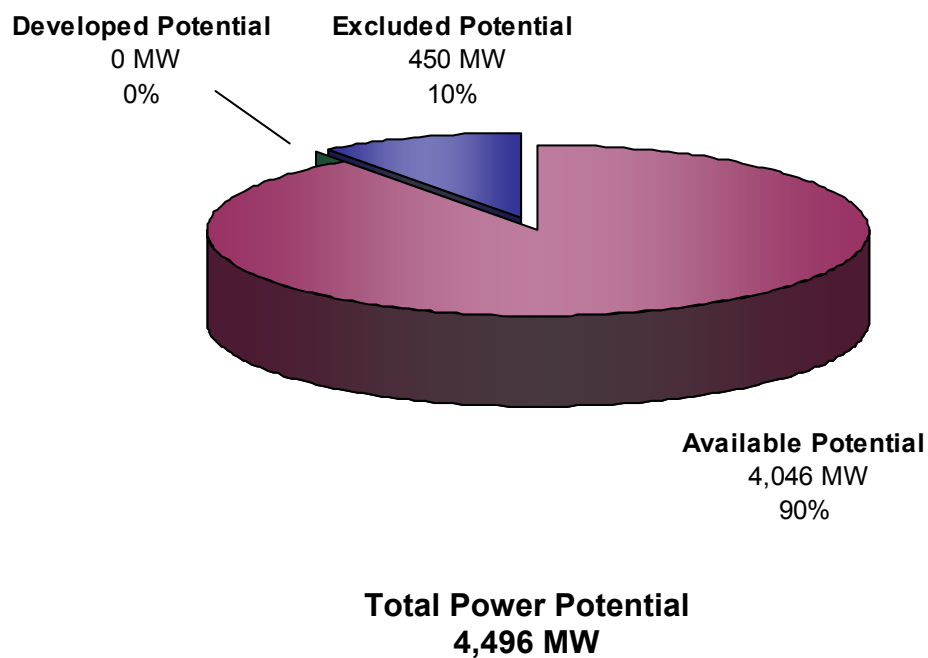
Figure B-117. Power category distribution of the total power potential (annual mean power) of water energy resources in Mississippi.
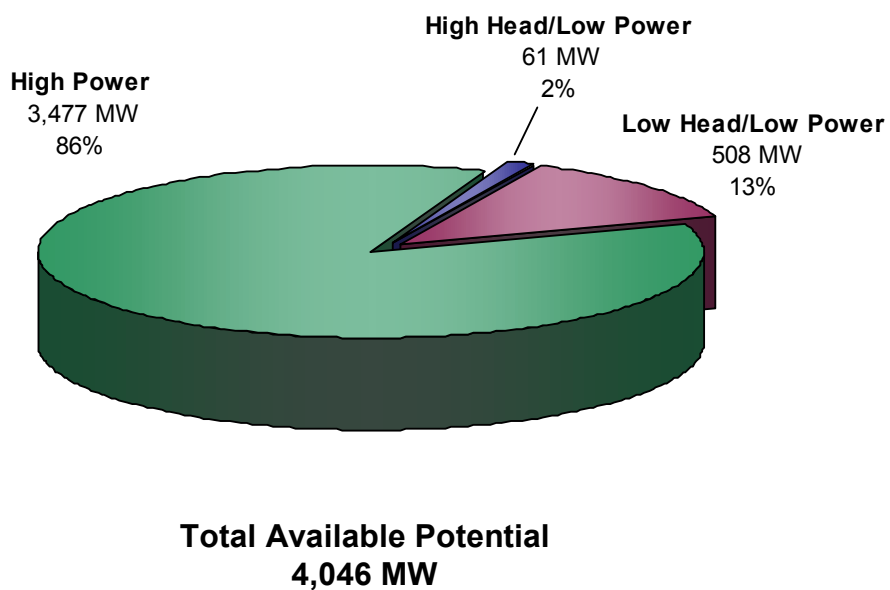
High Head/Low Power
61 MW
2%

High Power
3,477 MW
86%

Low Head/Low Power
508 MW
13%

Total Available Potential
4,046 MW

Figure B-118. Power class distribution of the available power potential (annual mean power) of water energy resources in Mississippi.

Microhydro Total
217 MW
Microhydro Developed
& Excluded
8 MW

Microhydro Available
209 MW
(41% of total available)

Conventional
Turbines Total
184 MW
Conventional
Turbines Available
172 MW
(34% of total available)

Conventional Turbines
Developed and Excluded
12 MW

Unconventional
Systems Total
133 MW
Unconventional Systems Available
127 MW
(25% of total available)

Unconventional
Systems Developed & Excluded
6 MW

Low Head/Low Power Totals
Total Potential: **534 MW**
Developed Potential: **0 MW**
Excluded Potential: **26 MW**
Available Potential: **508 MW**

Figure B-119. Distribution of the low head/low power power potential (annual mean power) of water energy resources in Mississippi among three low head/low power hydropower technology classes.
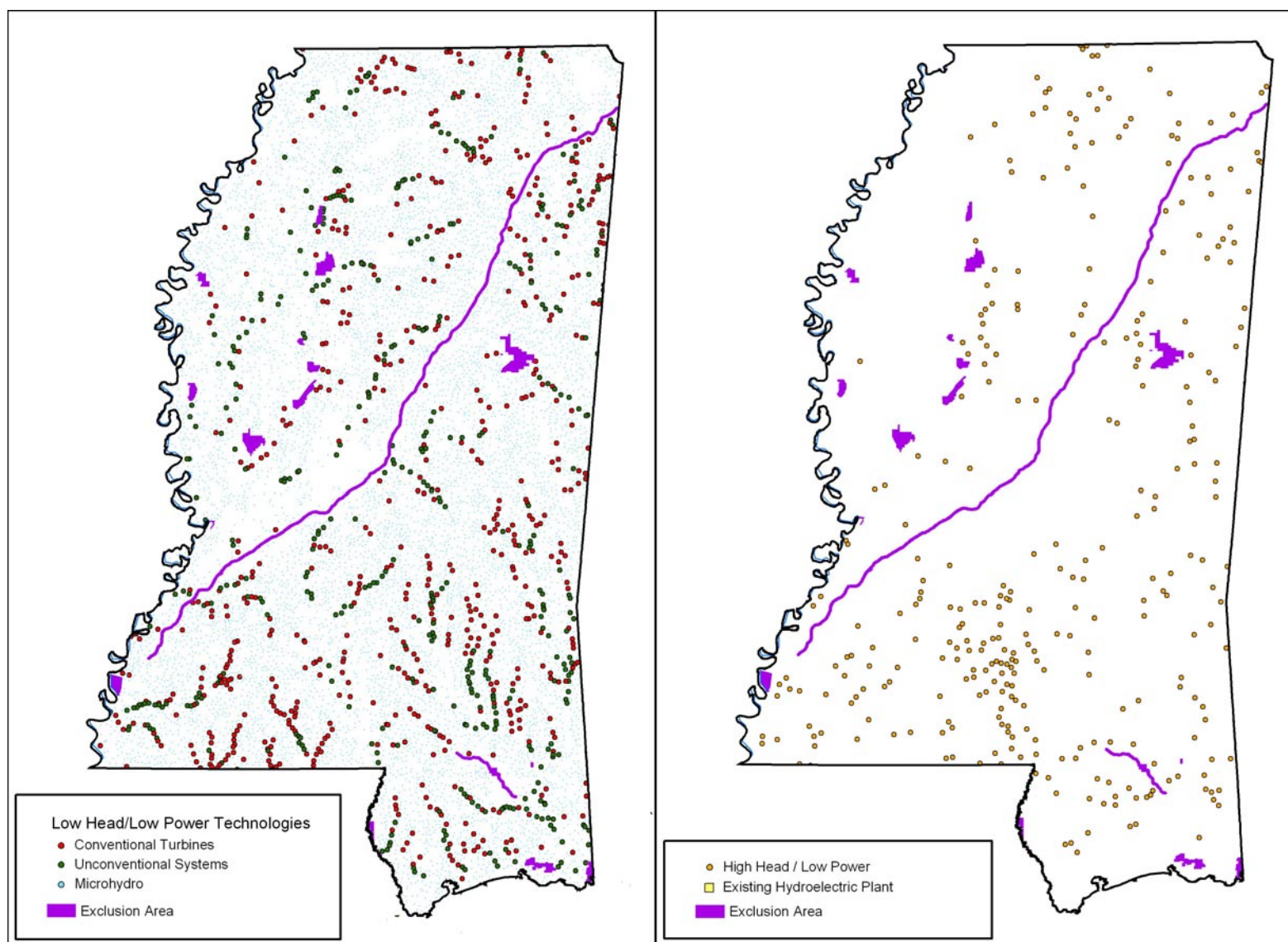
Figure B-120. Low head/low power and high head/low power water energy sites, and existing hydroelectric plants in Mississippi.
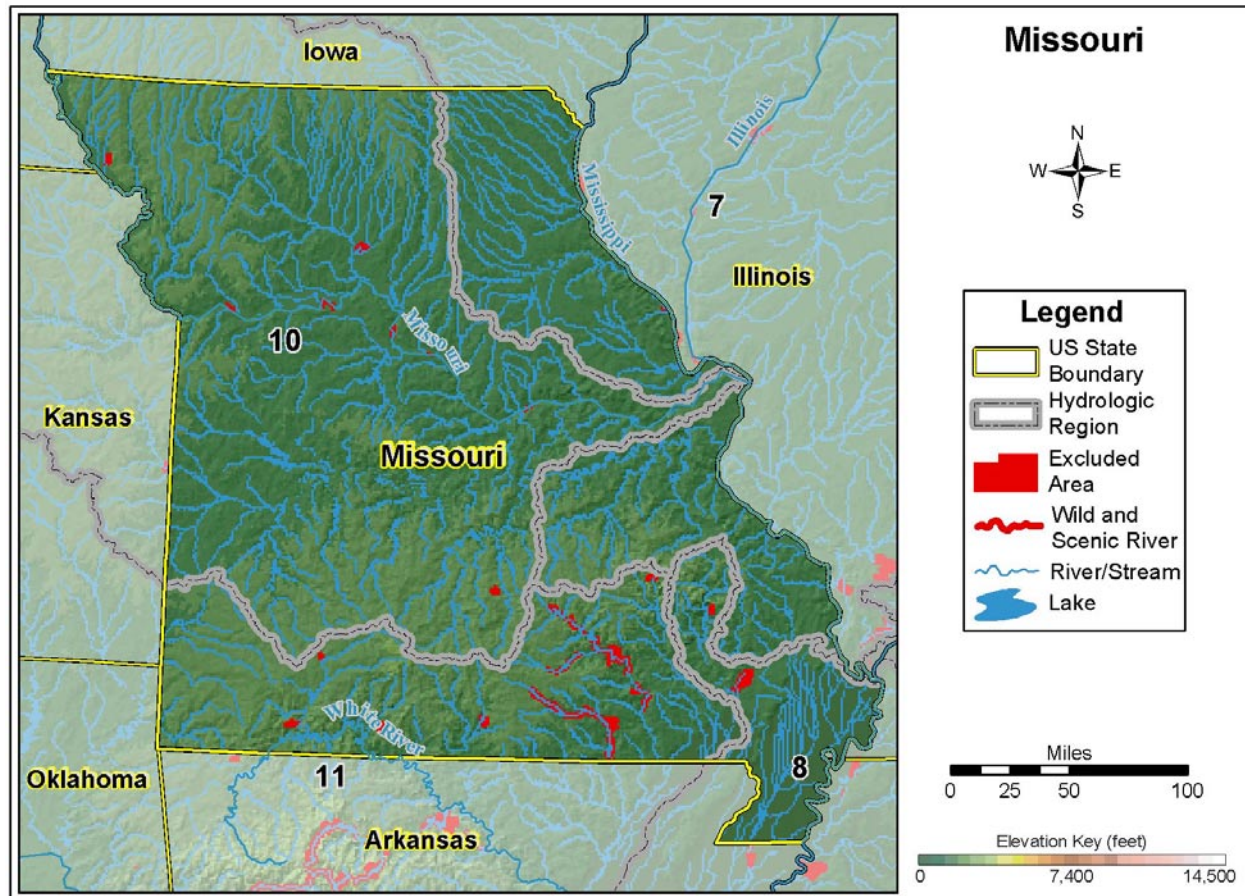
B.25 Missouri

Figure B-121. Missouri.

Table B-25. Summary of results of water energy resource assessment of Missouri.

| Annual Mean Power (MW)	Total	Developed	Excluded	Available[a]
TOTAL POWER	**4,549**	**129**	**117**	**4,303**
TOTAL HIGH POWER	**3,588**	**128**	**65**	**3,395**
High Head/High Power	190	128	14	48
Low Head/High Power	3,398	0	51	3,347
TOTAL LOW POWER	**961**	**1**	**52**	**908**
High Head/Low Power	202	1	16	185
Low Head/Low Power	759	0	36	723
Conventional Turbine	296	0	19	277
Unconventional Systems	108	0	10	98
Microhydro	355	0	7	348
a. No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.				
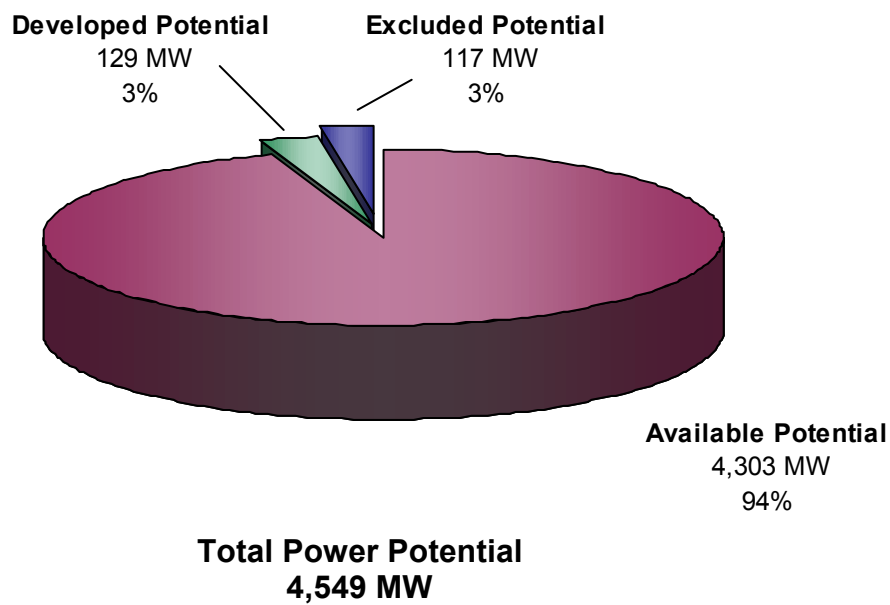
Figure B-122. Power category distribution of the total power potential (annual mean power) of water energy resources in Missouri.
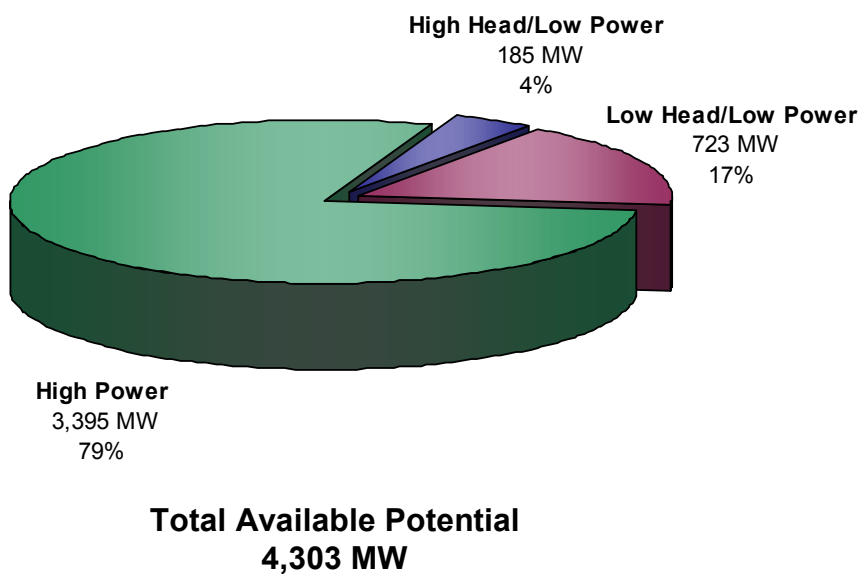

Figure B-123. Power class distribution of the available power potential (annual mean power) of water energy resources in Missouri.
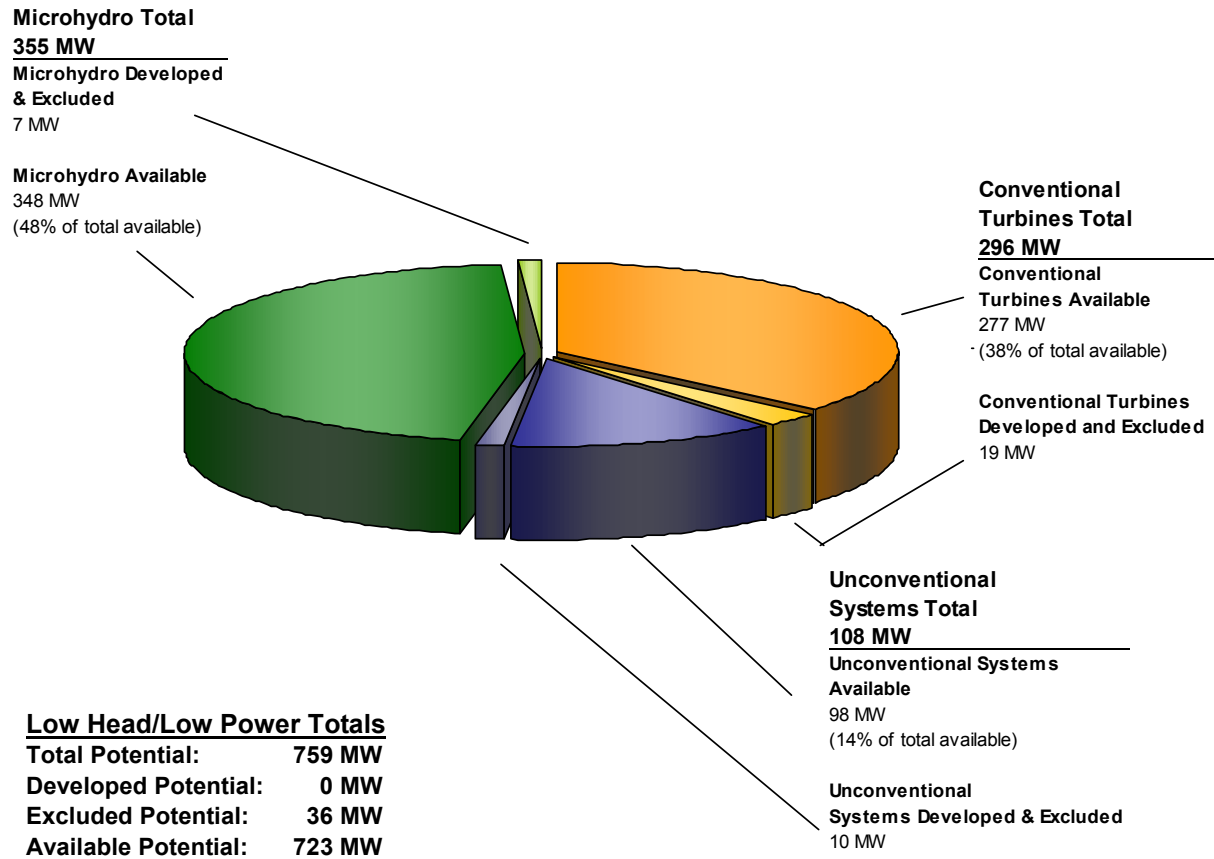
Microhydro Total
355 MW
Microhydro Developed
& Excluded
7 MW

Microhydro Available
348 MW
(48% of total available)

**Conventional
Turbines Total
296 MW**
Conventional
Turbines Available
277 MW
(38% of total available)

Conventional Turbines
Developed and Excluded
19 MW

**Unconventional
Systems Total
108 MW**
Unconventional Systems
Available
98 MW
(14% of total available)

Unconventional
Systems Developed & Excluded
10 MW

Low Head/Low Power Totals
Total Potential: 759 MW
Developed Potential: 0 MW
Excluded Potential: 36 MW
Available Potential: 723 MW

Missouri

Figure B-124. Distribution of the low head/low power power potential (annual mean power) of water energy resources in Missouri among three low head/low power hydropower technology classes.
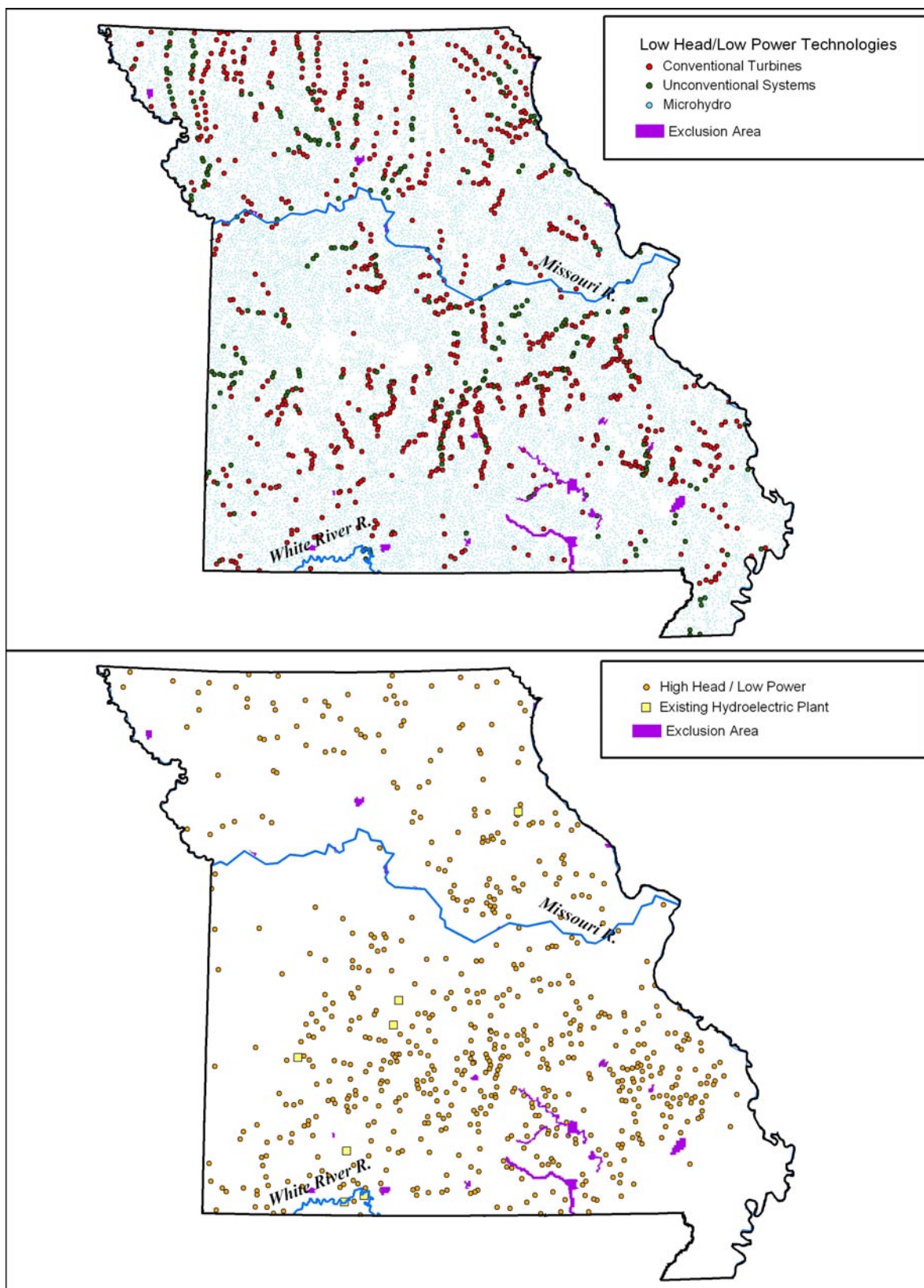
Figure B-125. Low head/low power and high head/low power water energy sites, and existing hydroelectric plants in Missouri.
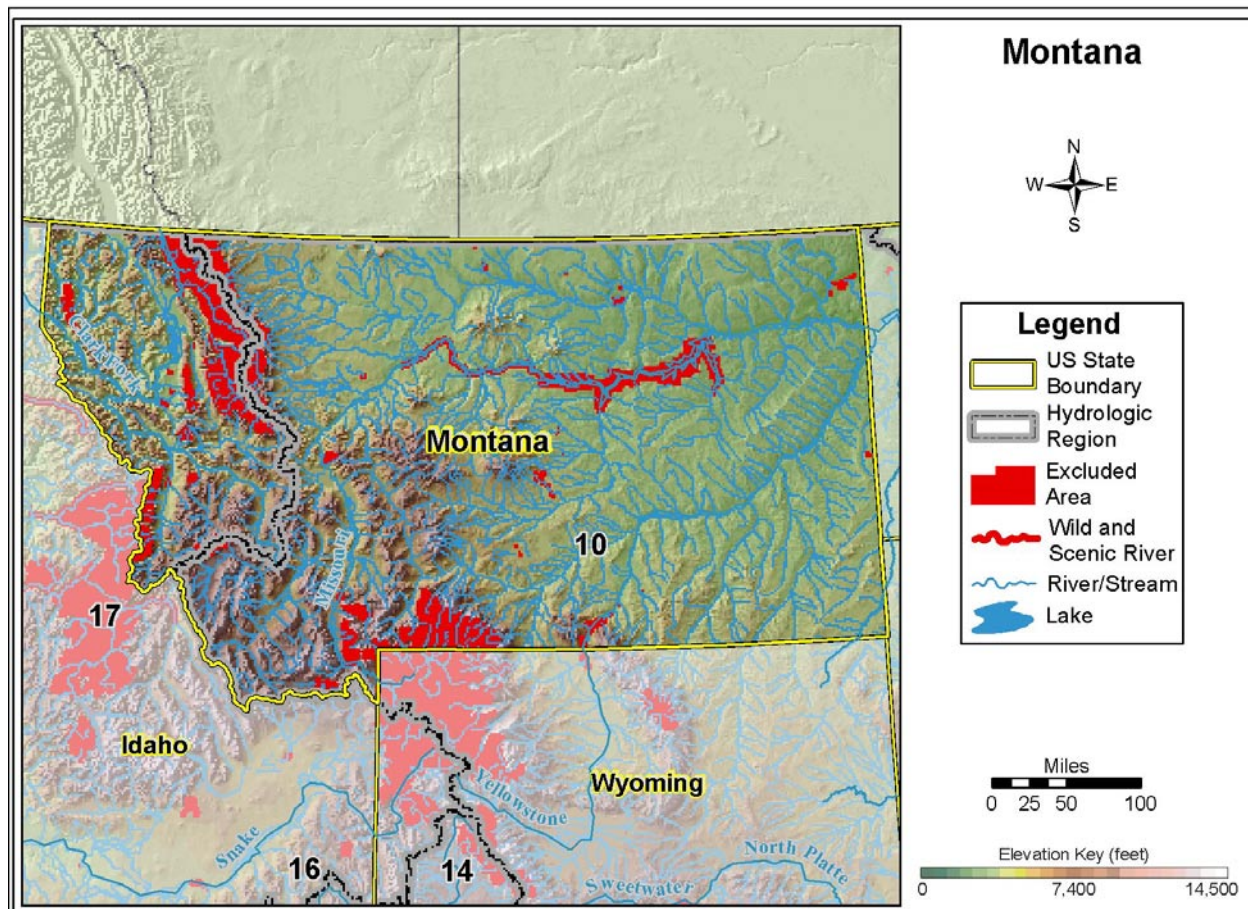
B.26 Montana

Figure B-126. Montana.

Table B-26. Summary of results of hydropower resource assessment of Montana.

Annual Mean Power (MW)	Total	Developed	Excluded	Available[a]
TOTAL POWER	**6,379**	**1,192**	**2,179**	**3,008**
TOTAL HIGH POWER	**4,602**	**1,188**	**1,899**	**1,515**
High Head/High Power	3,721	1,179	1,762	780
Low Head/High Power	881	9	137	735
TOTAL LOW POWER	**1,777**	**4**	**280**	**1,493**
High Head/Low Power	1,140	4	239	897
Low Head/Low Power	637	0	41	596
Conventional Turbine	222	0	14	208
Unconventional Systems	106	0	15	91
Microhydro	309	0	12	297

a. No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.
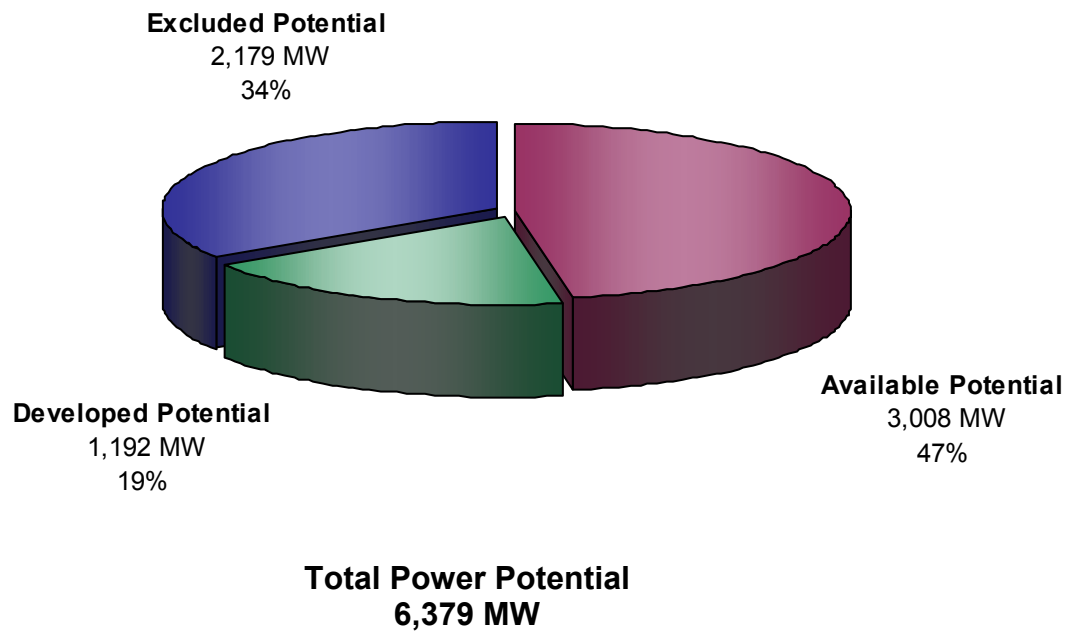
Excluded Potential
2,179 MW
34%

Available Potential
3,008 MW
47%

Developed Potential
1,192 MW
19%

Total Power Potential
6,379 MW

Figure B-127. Power category distribution of the total power potential (annual mean power) of water energy resources in Montana.

High Power
1,515 MW
50%

High Head/Low Power
897 MW
30%

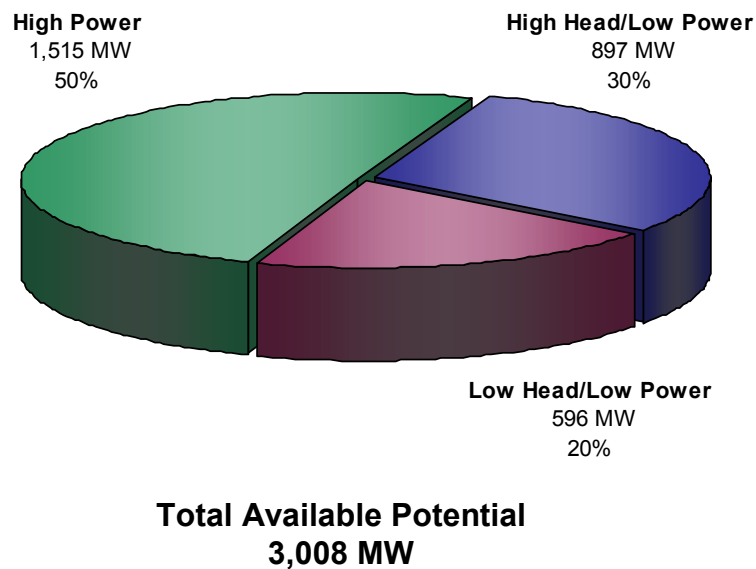**Low Head/Low Power**
596 MW
20%

Total Available Potential
3,008 MW

Figure B-128. Power class distribution of the available power potential (annual mean power) of water energy resources in Montana.
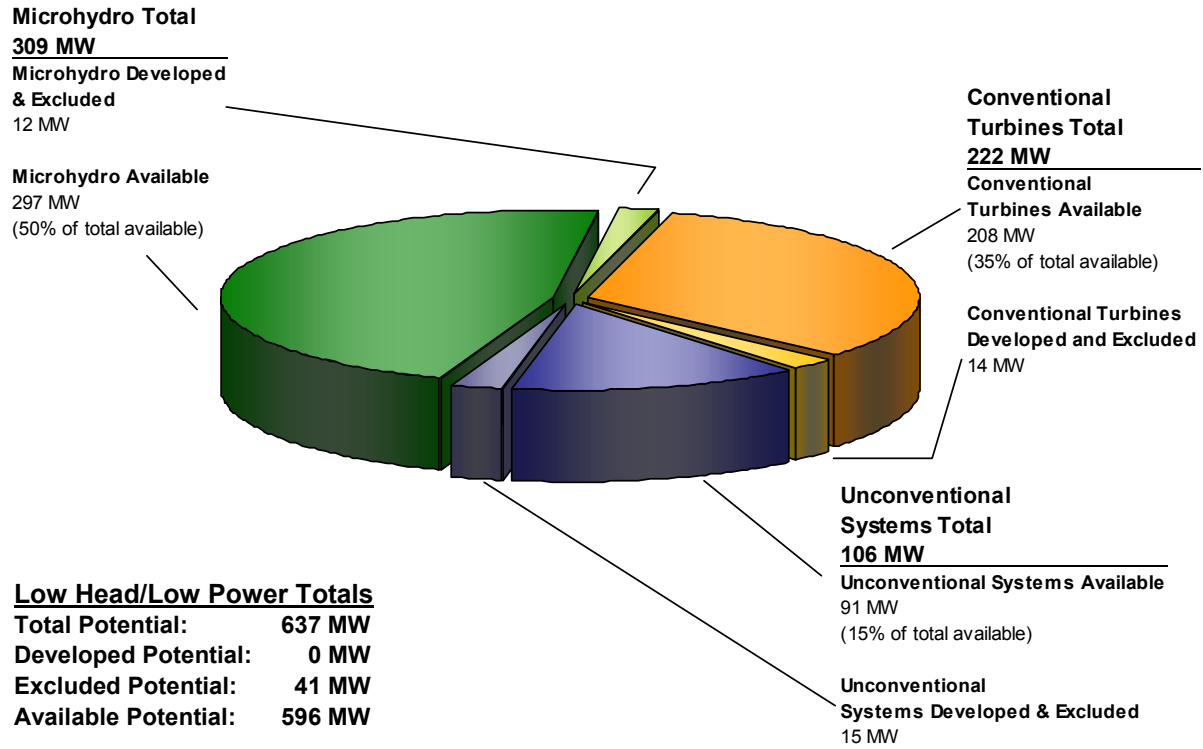
Microhydro Total
309 MW
Microhydro Developed
& Excluded
12 MW

Microhydro Available
297 MW
(50% of total available)

Conventional
Turbines Total
222 MW
Conventional
Turbines Available
208 MW
(35% of total available)

Conventional Turbines
Developed and Excluded
14 MW

Unconventional
Systems Total
106 MW
Unconventional Systems Available
91 MW
(15% of total available)

Unconventional
Systems Developed & Excluded
15 MW

Low Head/Low Power Totals
Total Potential: **637 MW**
Developed Potential: **0 MW**
Excluded Potential: **41 MW**
Available Potential: **596 MW**

Figure B-129. Distribution of the low head/low power power potential (annual mean power) of water energy resources in Montana among three low head/low power hydropower technology classes.
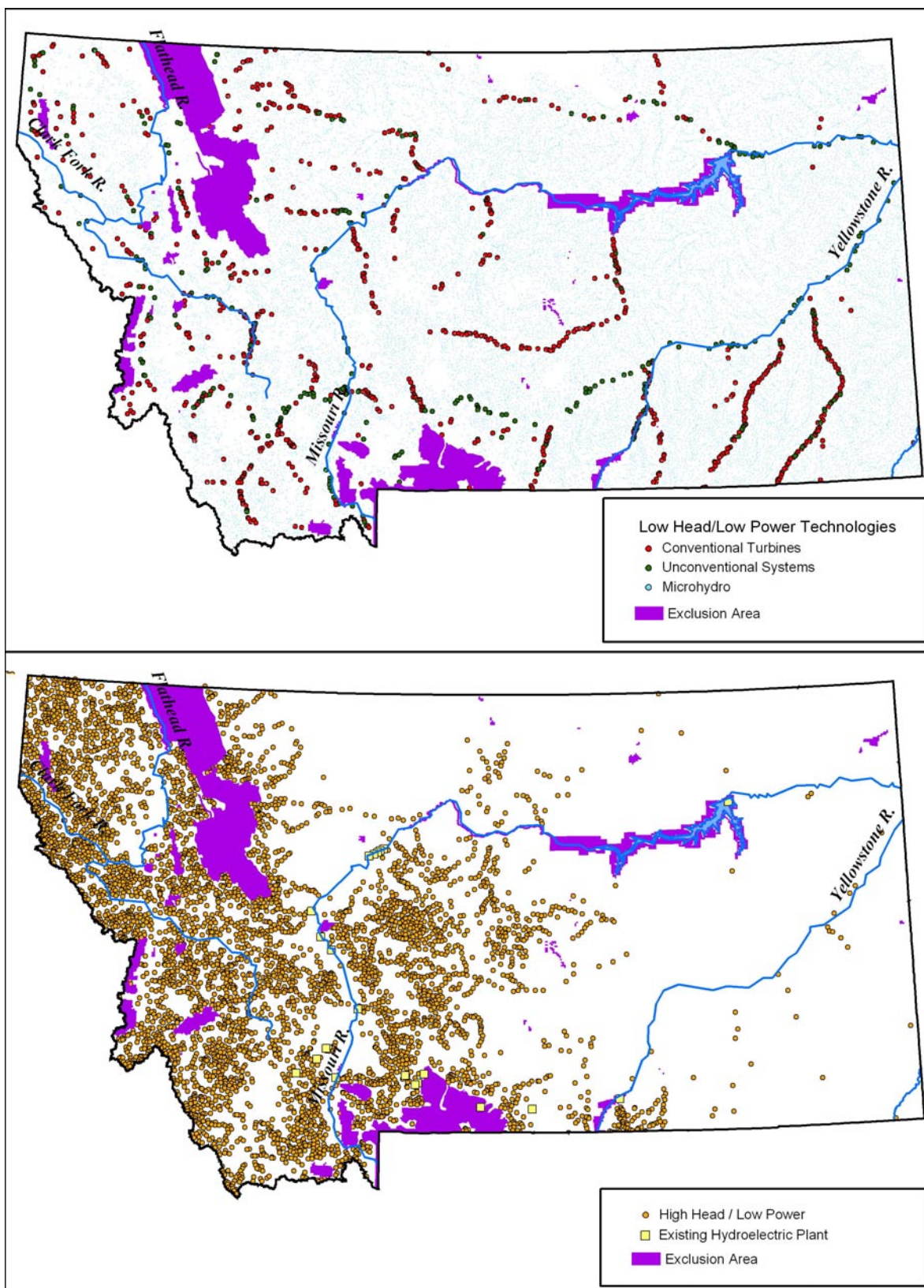
Figure B-130. Low head/low power and high head/low power water energy sites, and existing hydroelectric plants in Montana.
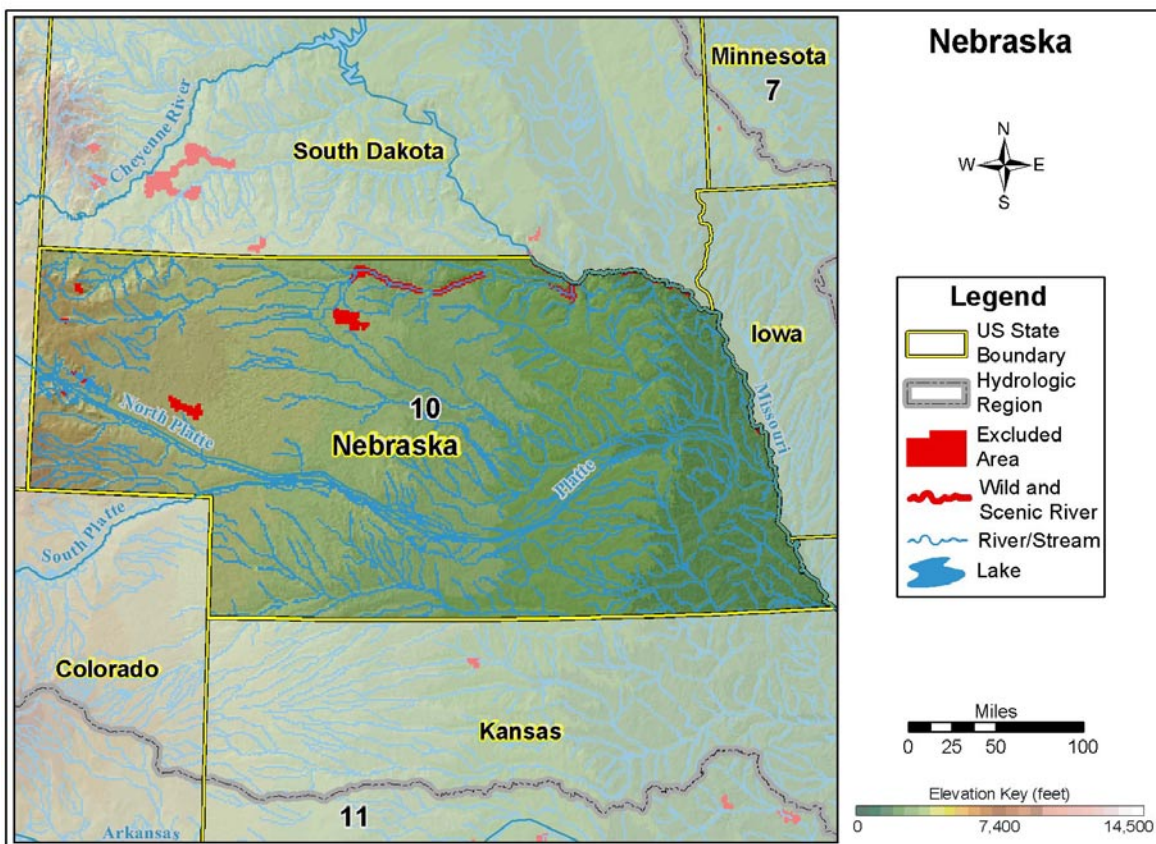
B.27 Nebraska

Figure B-131. Nebraska.

Table B-27. Summary of results of hydropower resource assessment of Nebraska.

Annual Mean Power (MW)	Total	Developed[a]	Excluded	Available[a,b]
TOTAL POWER	1,222	152	103	967
TOTAL HIGH POWER	565	152	65	348
High Head/High Power	102	73	29	0
Low Head/High Power	463	79	36	348
TOTAL LOW POWER	657	0	38	619
High Head/Low Power	71	0	2	69
Low Head/Low Power	586	0	36	550
Conventional Turbine	306	0	26	280
Unconventional Systems	78	0	7	71
Microhydro	202	0	3	199

a. Developed high head/high power potential exceeded total potential in this power class probably because the developed power is made up of resources in other power classes. "Excess" developed power in the high head/high power class (78 MW) was rolled downward into the low head/high power power class

b. No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.
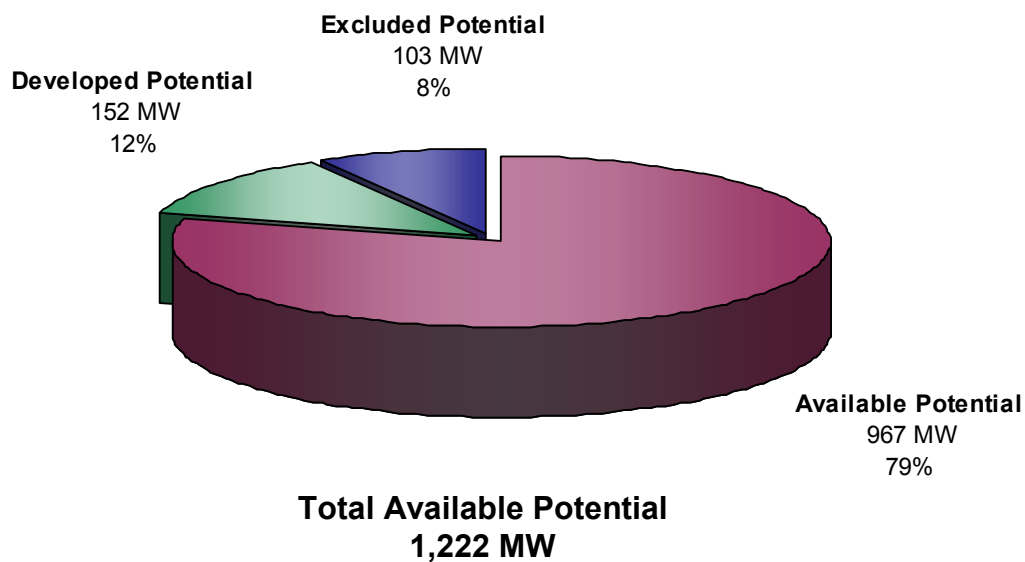
Excluded Potential
103 MW
8%

Developed Potential
152 MW
12%

Available Potential
967 MW
79%

Total Available Potential
1,222 MW

Figure B-132. Power category distribution of the total power potential (annual mean power) of water energy resources in Nebraska.

High Power
348 MW
36%

High Head/Low Power
69 MW
7%

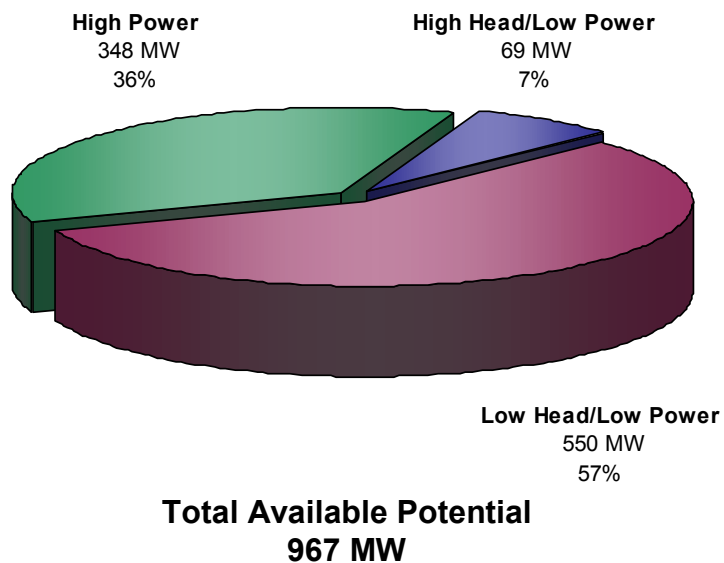**Low Head/Low Power**
550 MW
57%

Total Available Potential
967 MW

Figure B-133. Power class distribution of the available power potential (annual mean power) of water energy resources in Nebraska.

Microhydro Total
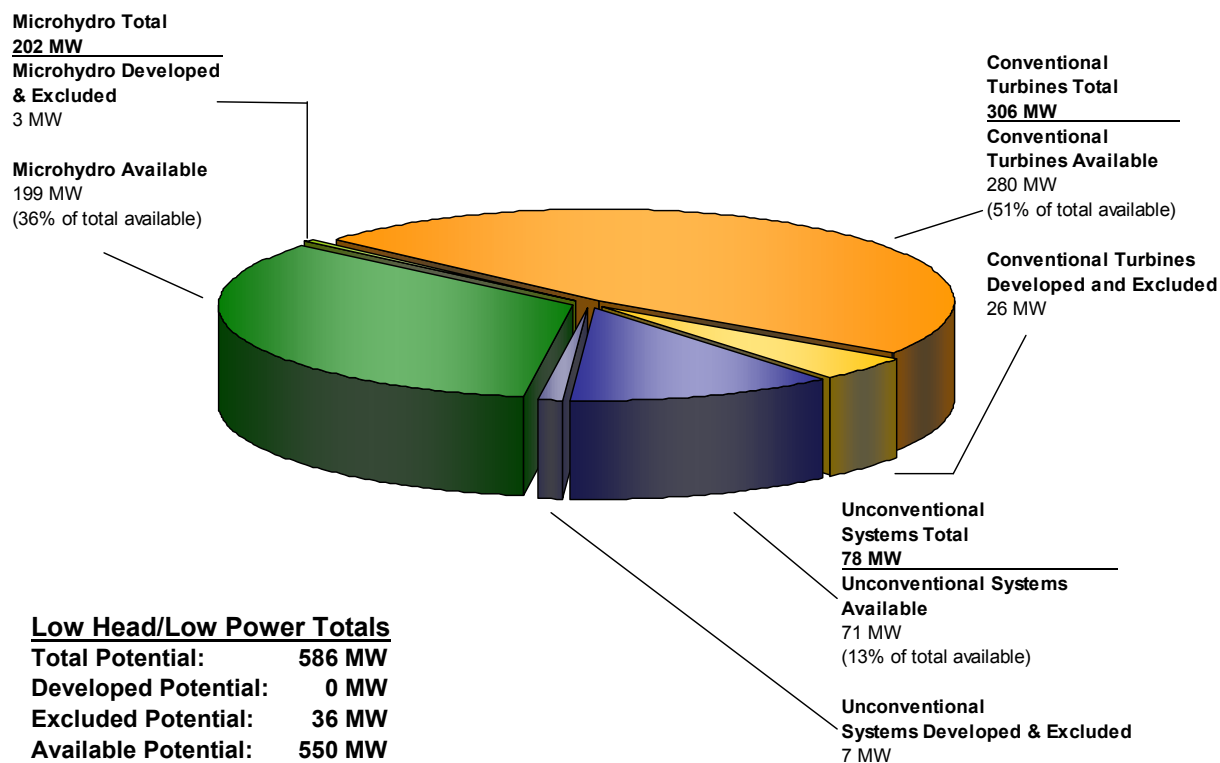**202 MW**
Microhydro Developed
& Excluded
3 MW

Microhydro Available
199 MW
(36% of total available)

Conventional
Turbines Total
306 MW
Conventional
Turbines Available
280 MW
(51% of total available)

Conventional Turbines
Developed and Excluded
26 MW

Unconventional
Systems Total
78 MW
Unconventional Systems
Available
71 MW
(13% of total available)

Unconventional
Systems Developed & Excluded
7 MW

Low Head/Low Power Totals
Total Potential:	**586 MW**
Developed Potential:	**0 MW**
Excluded Potential:	**36 MW**
Available Potential:	**550 MW**

Figure B-134. Distribution of the low head/low power power potential (annual mean power) of water energy resources in Nebraska among three low head/low power hydropower technology classes.
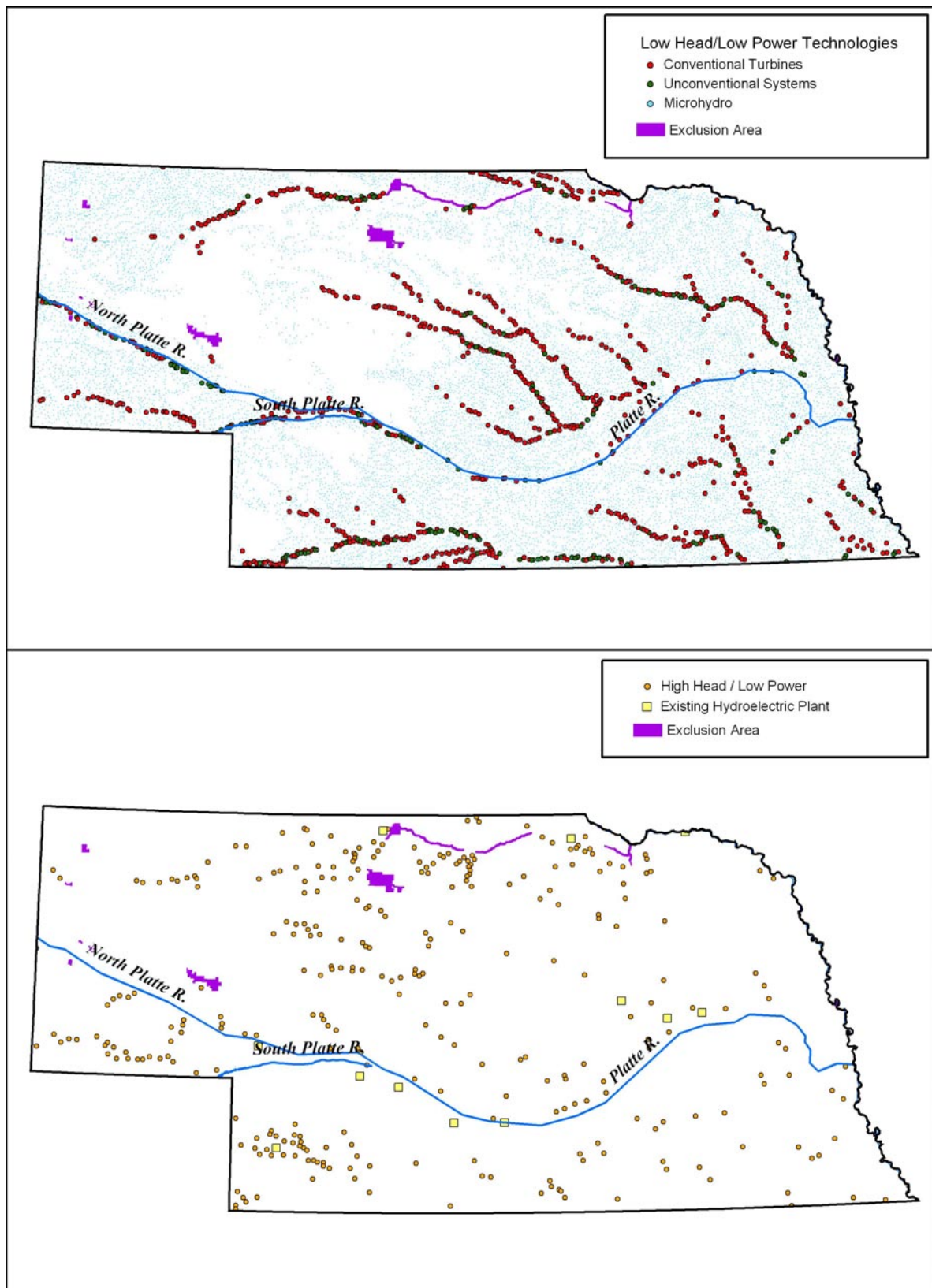
Figure B-135. Low head/low power and high head/low power water energy sites, and existing hydroelectric plants in Nebraska.
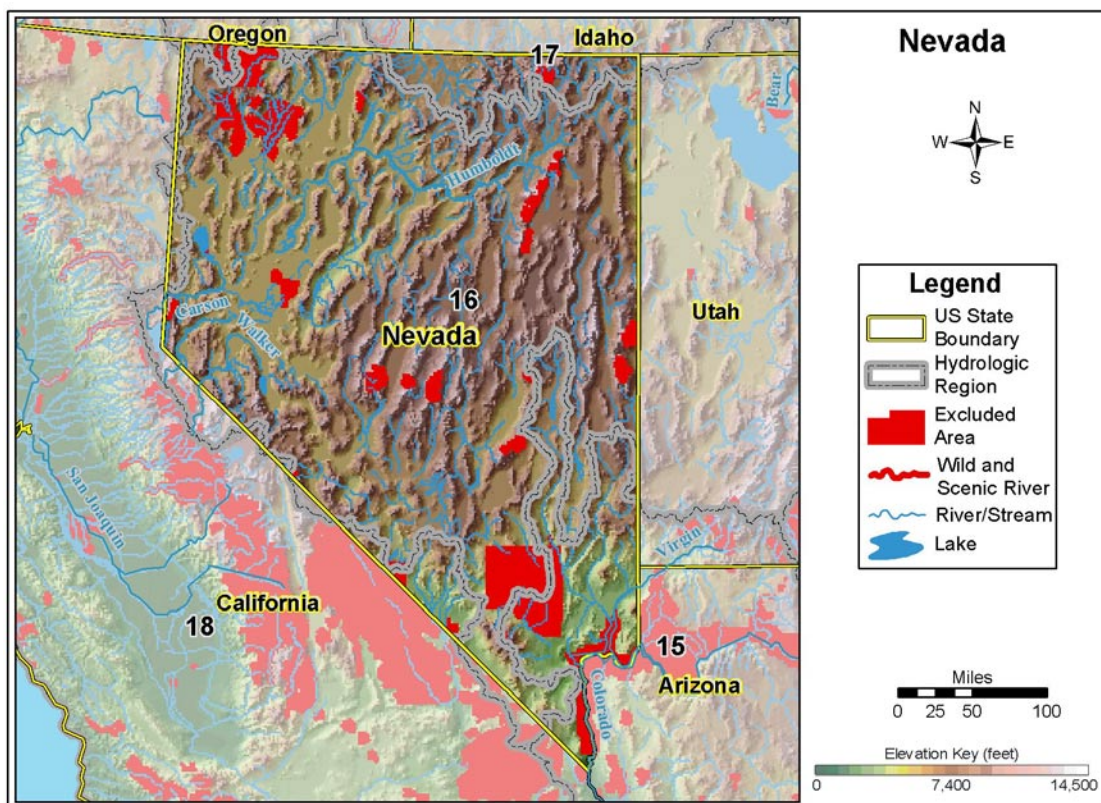
B.28 Nevada

Figure B-136. Nevada.

Table B-28. Summary of results of hydropower resource assessment of Nevada.

Annual Mean Power (MW)	Total	Developed[a]	Excluded[a]	Available[a,b]
TOTAL POWER	**1,137**	**263**	**147**	**727**
TOTAL HIGH POWER	**206**	**206**	**0**	**0**
High Head/High Power	**200**	**200**	**0**	**0**
Low Head/High Power	**6**	**6**	**0**	**0**
TOTAL LOW POWER	**931**	**57**	**147**	**727**
High Head/Low Power	**473**	**29**	**102**	**343**
Low Head/Low Power	**458**	**29**	**45**	**385**
Conventional Turbine	70	29	1	41
Unconventional Systems	9	0	1	8
Microhydro	379	0	43	336

a. Developed high head/high power potential in exclusion zones exceeded the total amount of potential in exclusion zones in this power class by 198 MW probably because the developed power is made up of resources in other power classes. Assuming that all of the excluded potential in this power class has been developed resulted in 61 MW of "excess" developed power in the high head/high power class. This "excess" developed power was rolled downward into lower power classes in this table to the extent that each lower power class could accommodate additional developed power without creating a negative available potential. "Excess" developed power was redistributed proportionally based on the original distribution of developed power among the lower power classes.

b. No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.
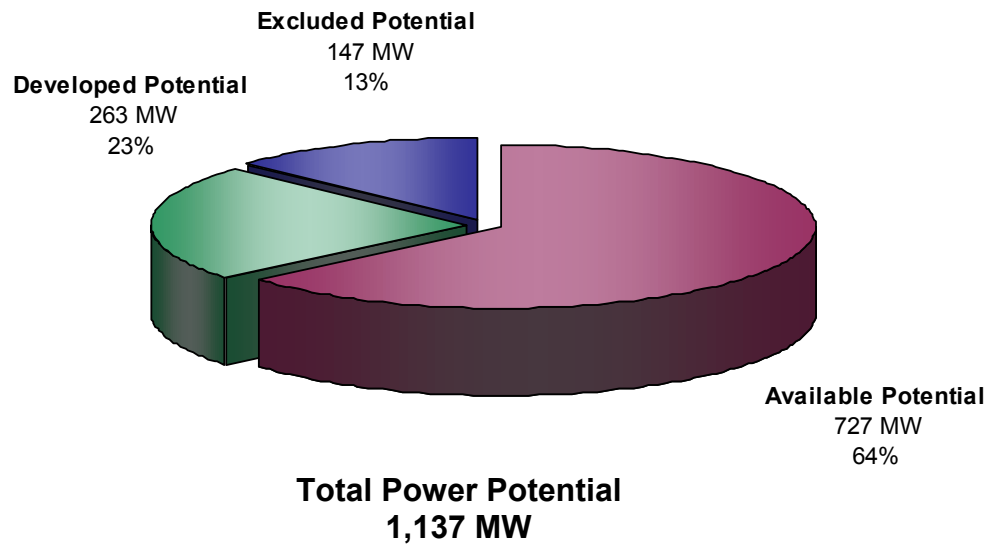
Excluded Potential
147 MW
13%

Developed Potential
263 MW
23%

Available Potential
727 MW
64%

Total Power Potential
1,137 MW

Figure B-137. Power category distribution of the total power potential (annual mean power) of water energy resources in Nevada.

Low Head/Low Power
385 MW
53%

High Power
0 MW
0%

High Head/Low Power
343 MW
47%

Total Available Potential
727 MW
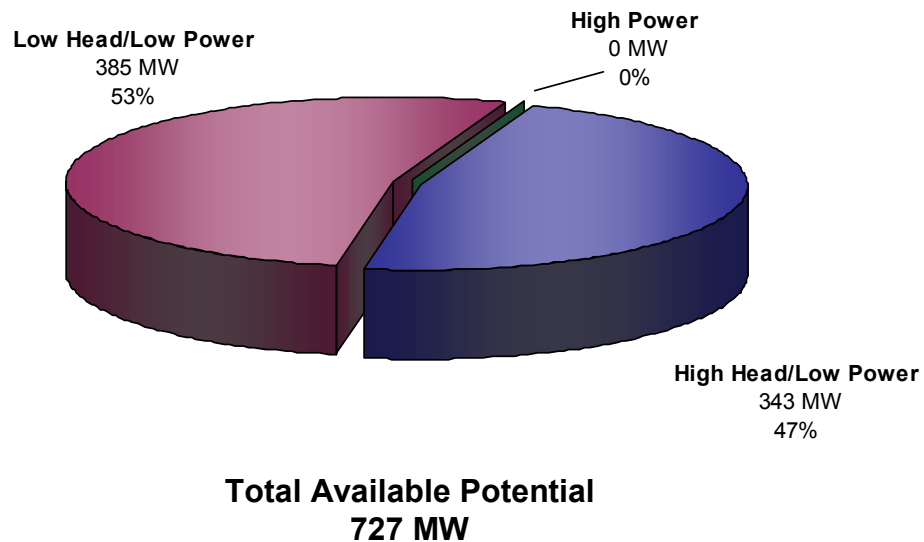
Figure B-138. Power class distribution of the available power potential (annual mean power) of water energy resources in Nevada.

Microhydro Total
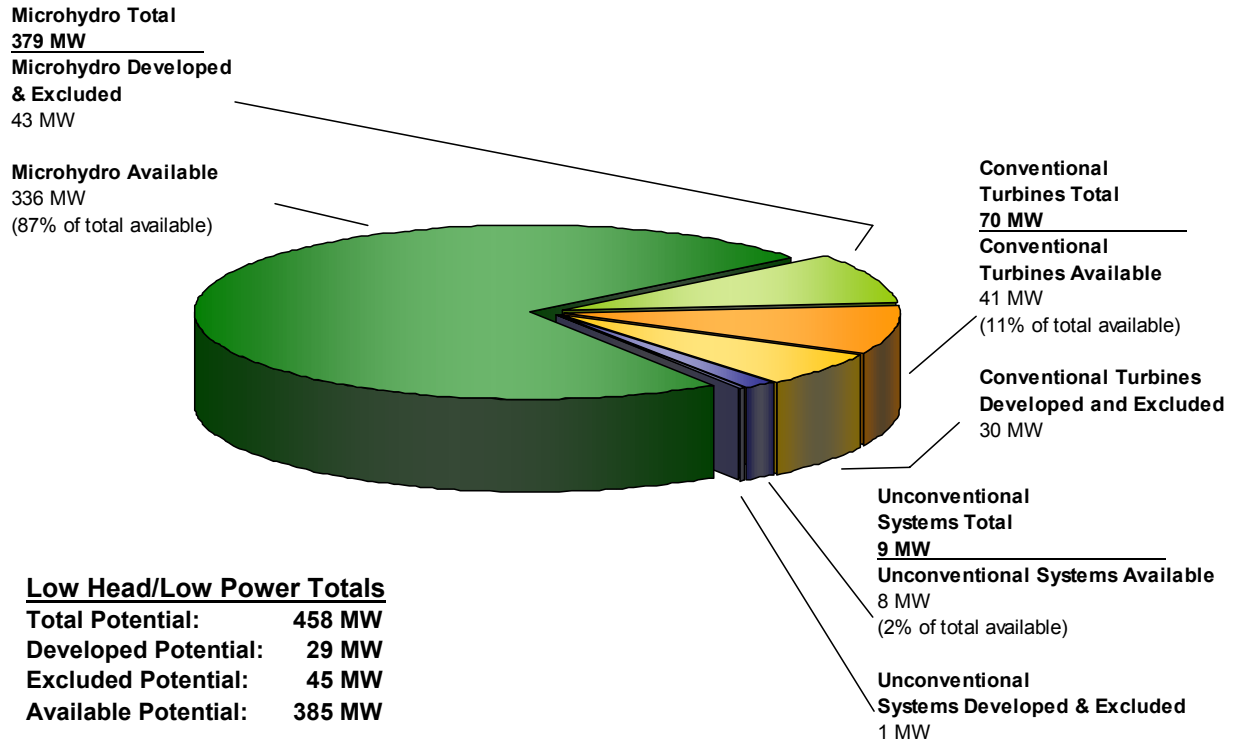**379 MW**
Microhydro Developed
& Excluded
43 MW

Microhydro Available
336 MW
(87% of total available)

Conventional
Turbines Total
70 MW
Conventional
Turbines Available
41 MW
(11% of total available)

Conventional Turbines
Developed and Excluded
30 MW

Unconventional
Systems Total
9 MW
Unconventional Systems Available
8 MW
(2% of total available)

Unconventional
Systems Developed & Excluded
1 MW

Low Head/Low Power Totals
Total Potential:	**458 MW**
Developed Potential:	**29 MW**
Excluded Potential:	**45 MW**
Available Potential:	**385 MW**

Figure B-139. Distribution of the low head/low power power potential (annual mean power) of water energy resources in Nevada among three low head/low power hydropower technology classes.
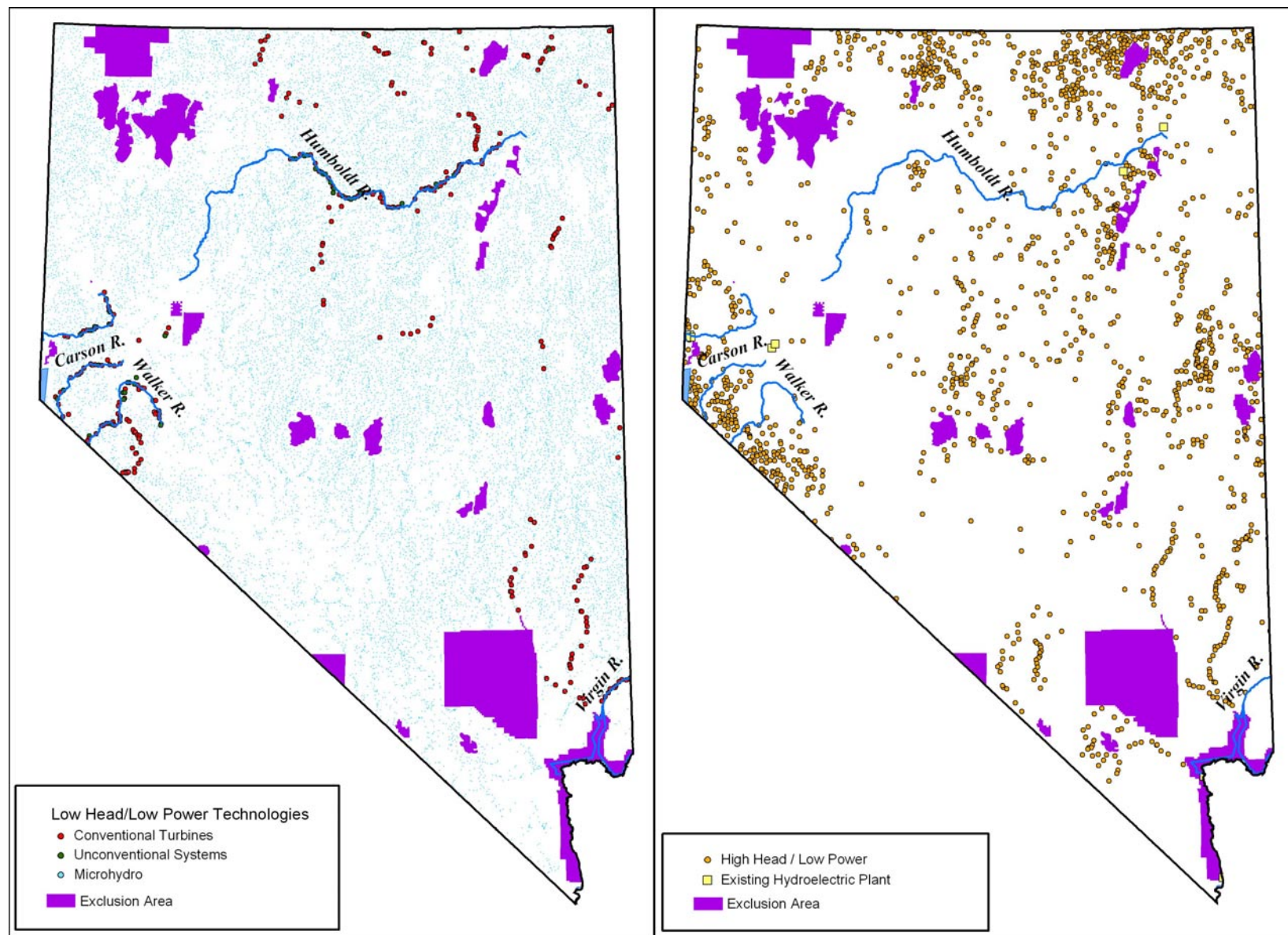
Figure B-140. Low head/low power and high head/low power water energy sites, and existing hydroelectric plants in Nevada.
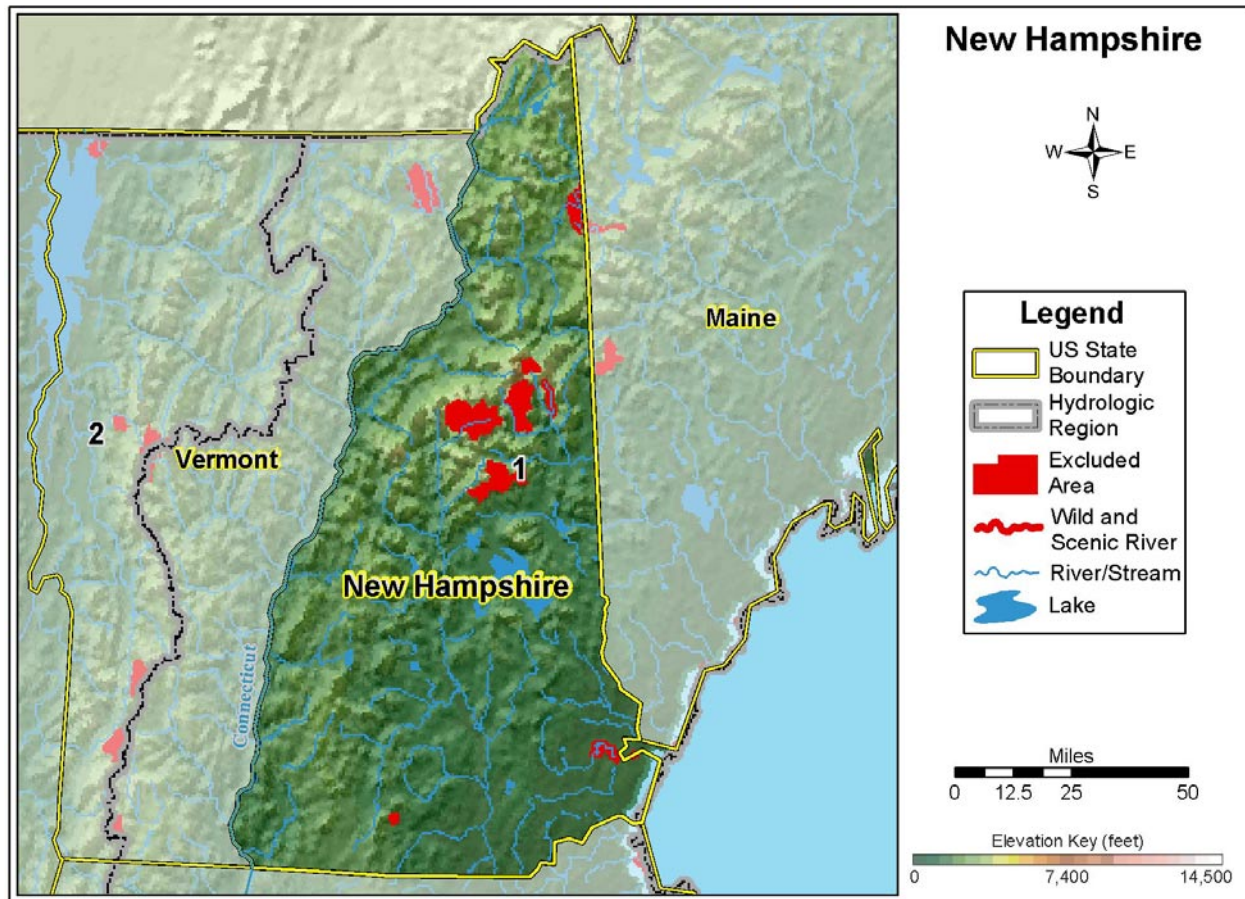
B.29 New Hampshire

Figure B-141. New Hampshire.

Table B-29. Summary of results of hydropower resource assessment of New Hampshire.

| Annual Mean Power (MW)	Total	Developed	Excluded	Available[a]
TOTAL POWER	**1,181**	**187**	**89**	**905**
TOTAL HIGH POWER	**804**	**167**	**59**	**578**
High Head/High Power	650	149	52	449
Low Head/High Power	154	18	7	129
TOTAL LOW POWER	**377**	**20**	**30**	**327**
High Head/Low Power	277	10	28	239
Low Head/Low Power	100	10	2	88
Conventional Turbine	44	9	1	34
Unconventional Systems	16	0	0	16
Microhydro	40	1	1	38
a. No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.				

Total Power Potential
1,181 MW
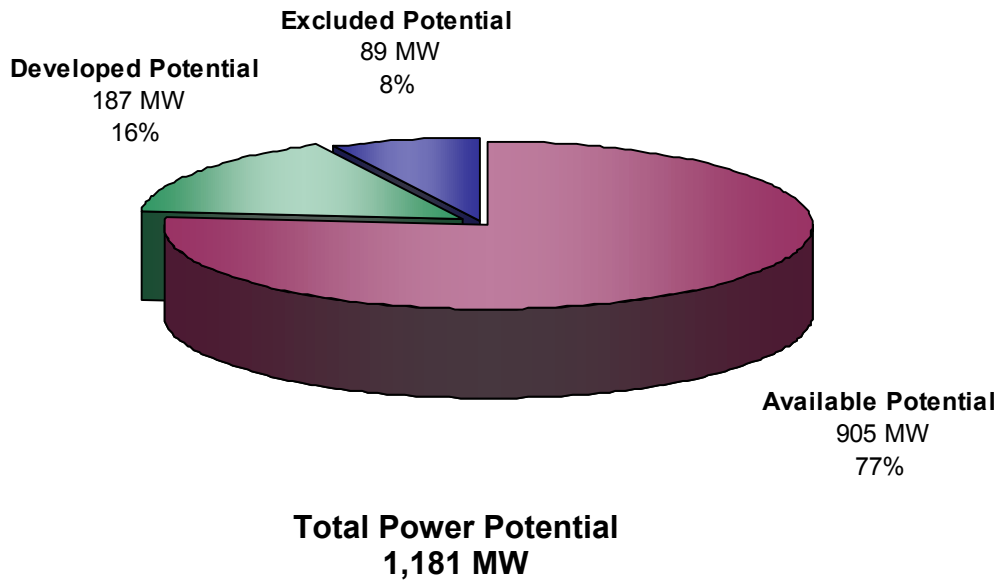
Figure B-142. Power category distribution of the total power potential (annual mean power) of water energy resources in New Hampshire.
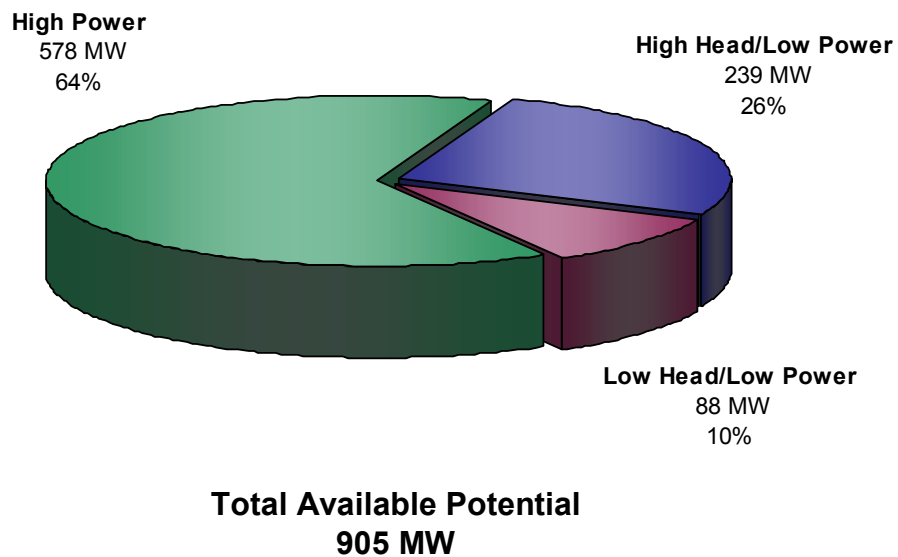

Total Available Potential
905 MW

Figure B-143. Power class distribution of the available power potential (annual mean power) of water energy resources in New Hampshire.

Microhydro Total
40 MW
Microhydro Developed
& Excluded
2 MW

Microhydro Available
38 MW
(43% of total available)

Conventional
Turbines Total
44 MW
Conventional
Turbines Available
34 MW
(39% of total available)

Conventional Turbines
Developed and Excluded
10 MW

Unconventional
Systems Total
16 MW
Unconventional Systems Available
16 MW
(18% of total available)

Unconventional
Systems Developed & Excluded
0 MW

Low Head/Low Power Totals
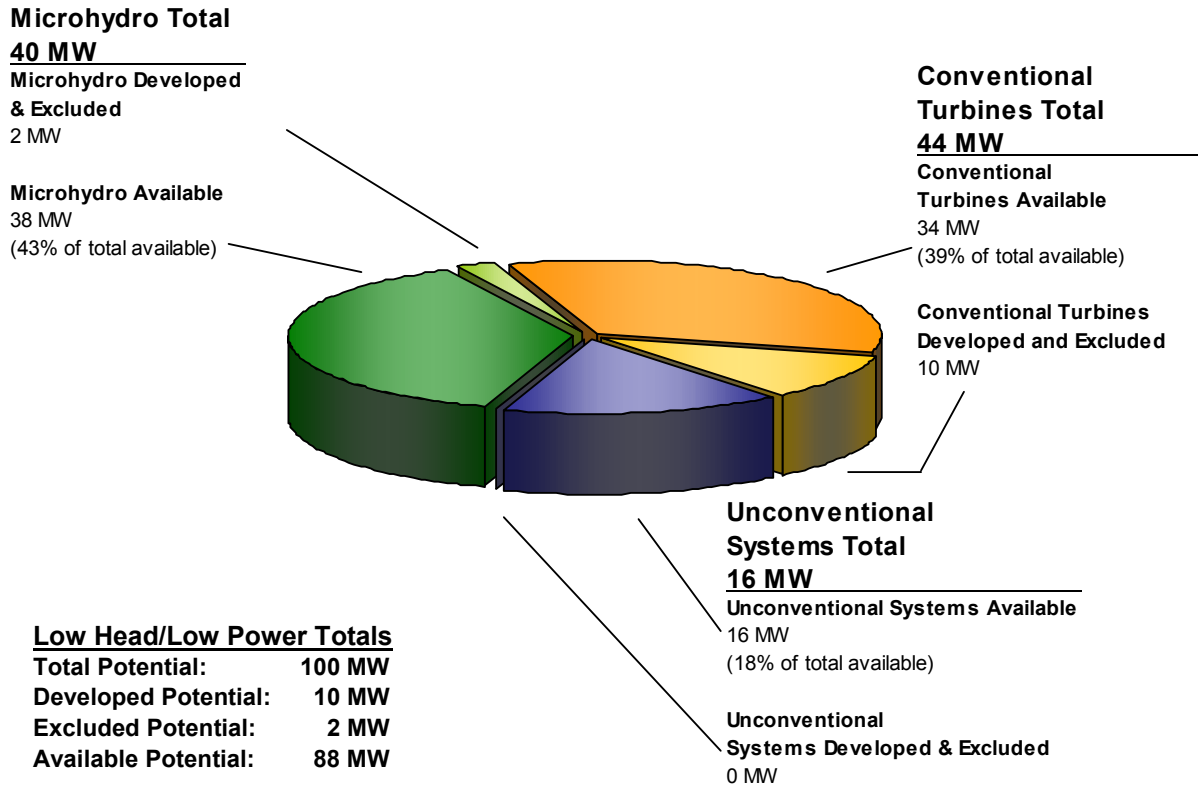|	
Total Potential:	**100 MW**
Developed Potential:	**10 MW**
Excluded Potential:	**2 MW**
Available Potential:	**88 MW**

Figure B-144. Distribution of the low head/low power power potential (annual mean power) of water energy resources in New Hampshire among three low head/low power hydropower technology classes.
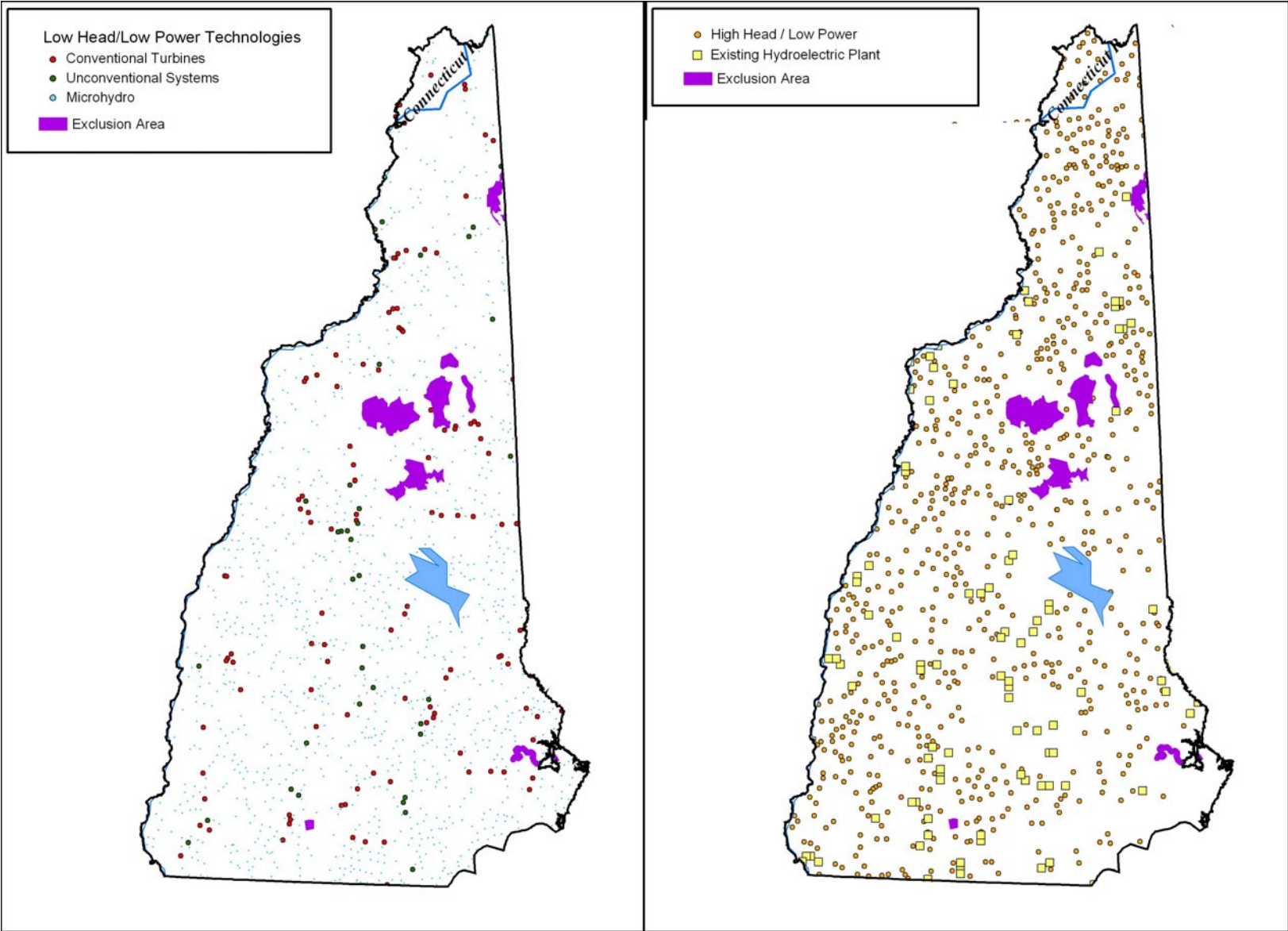
Figure B-145. Low head/low power and high head/low power water energy sites, and existing hydroelectric plants in New Hampshire.
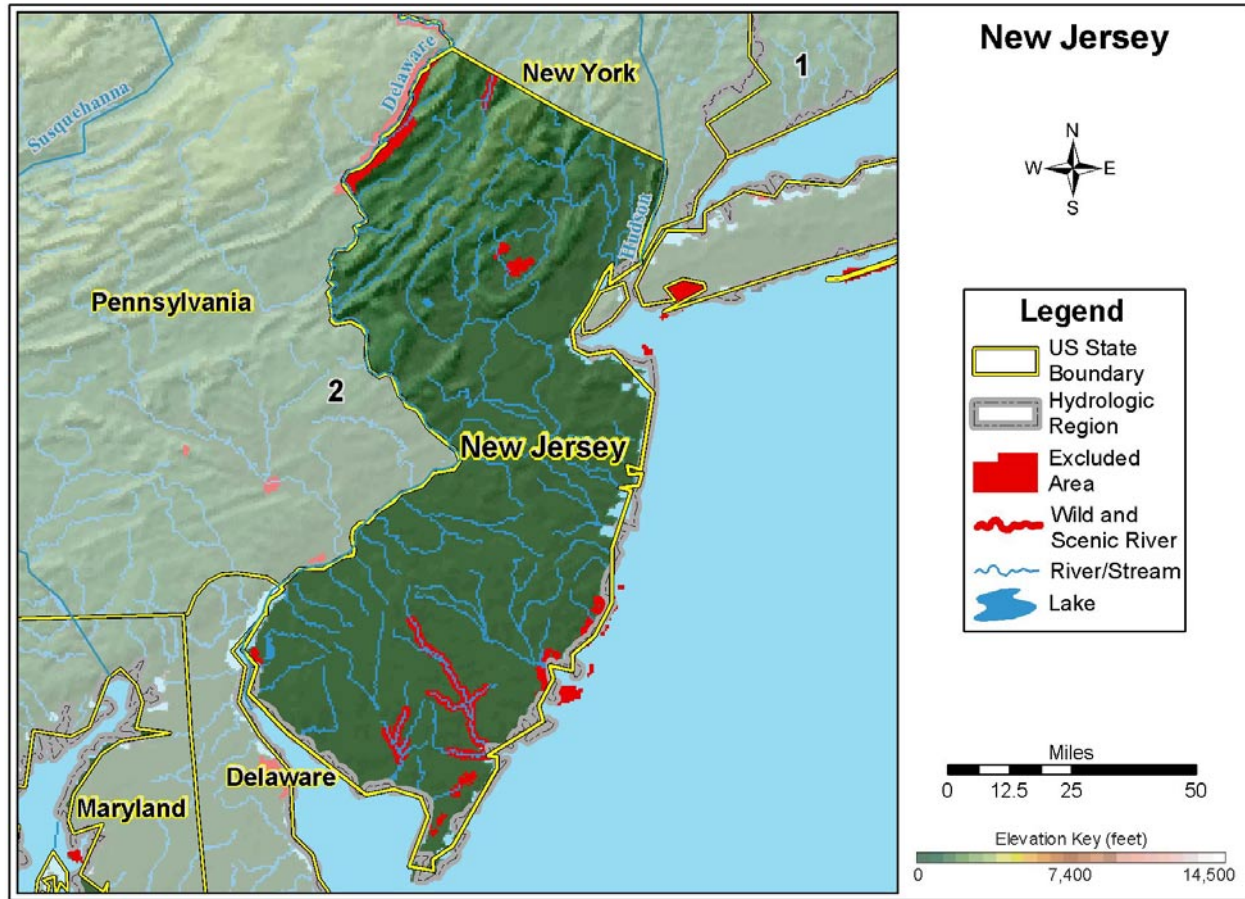
B.30 New Jersey

Figure B-146. New Jersey.

Table B-30. Summary of results of hydropower resource assessment of New Jersey.

Annual Mean Power (MW)	Total	Developed	Excluded	Available[a]
TOTAL POWER	**300**	**6**	**38**	**256**
TOTAL HIGH POWER	**203**	**5**	**30**	**168**
High Head/High Power	76	5	0	71
Low Head/High Power	127	0	30	97
TOTAL LOW POWER	**97**	**1**	**8**	**88**
High Head/Low Power	42	0	5	37
Low Head/Low Power	55	1	3	51
Conventional Turbine	21	1	1	19
Unconventional Systems	5	0	0	5
Microhydro	29	0	2	27

a. No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.
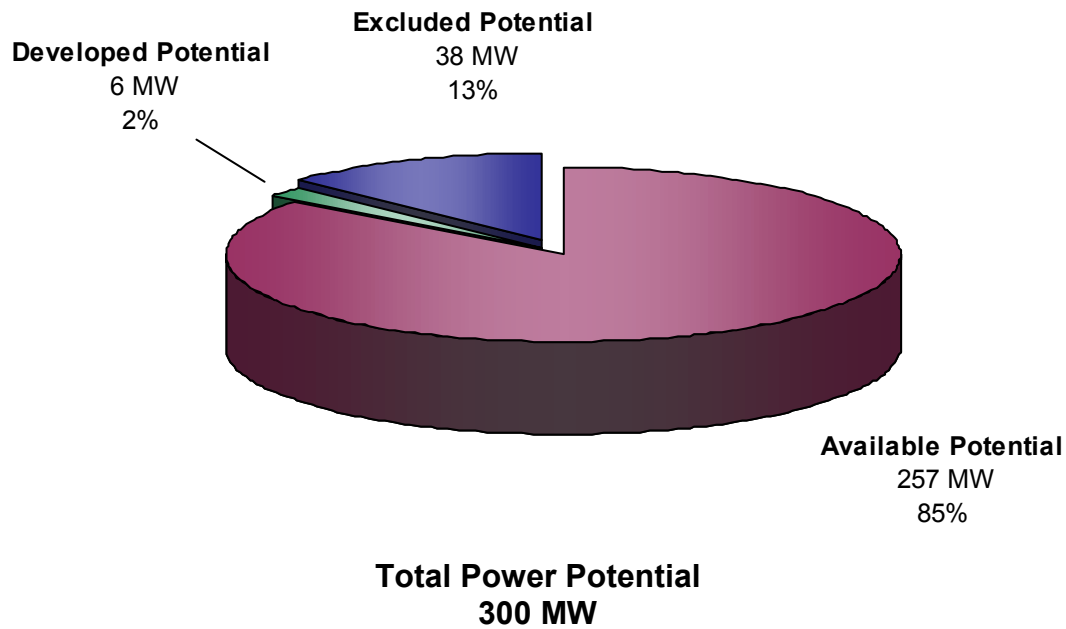
New Jersey

Developed Potential
6 MW
2%

Excluded Potential
38 MW
13%

Available Potential
257 MW
85%

Total Power Potential
300 MW

Figure B-147. Power category distribution of the total power potential (annual mean power) of water energy resources in New Jersey.

High Power
168 MW
66%

High Head/Low Power
37 MW
14 %

Low Head/Low Power
51 MW
20 %
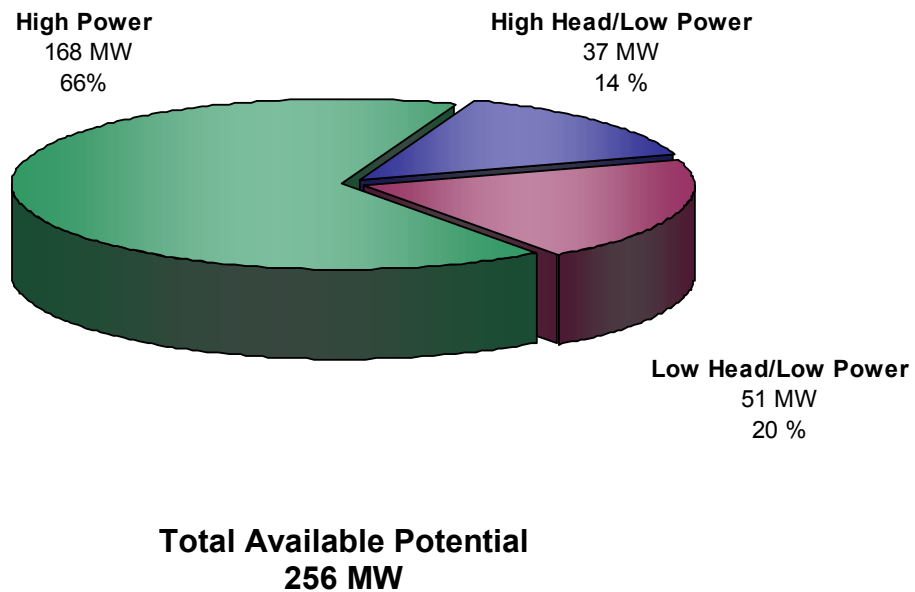
Total Available Potential
256 MW

Figure B-148. Power class distribution of the available power potential (annual mean power) of water energy resources in New Jersey.

Microhydro Total
29 MW
Microhydro Developed
& Excluded
2 MW

Microhydro Available
27 MW
(53% of total available)

Conventional
Turbines Total
21 MW
Conventional
Turbines Available
19 MW
(37% of total available)

Conventional Turbines
Developed and Excluded
2 MW

Unconventional
Systems Total
5 MW
Unconventional Systems Available
5 MW
(10% of total available)

Unconventional
Systems Developed & Excluded
0 MW

Low Head/Low Power Totals
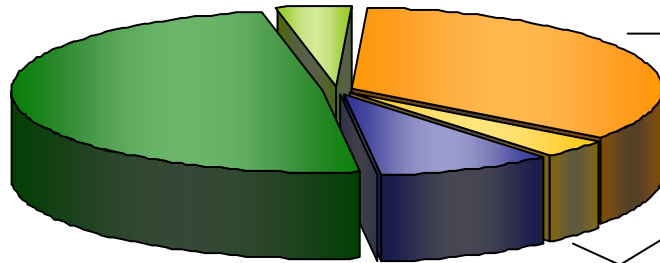|	
Total Potential:	**55 MW**
Developed Potential:	**1 MW**
Excluded Potential:	**3 MW**
Available Potential:	**51 MW**

Figure B-149. Distribution of the low head/low power power potential (annual mean power) of water energy resources in New Jersey among three low head/low power hydropower technology classes.
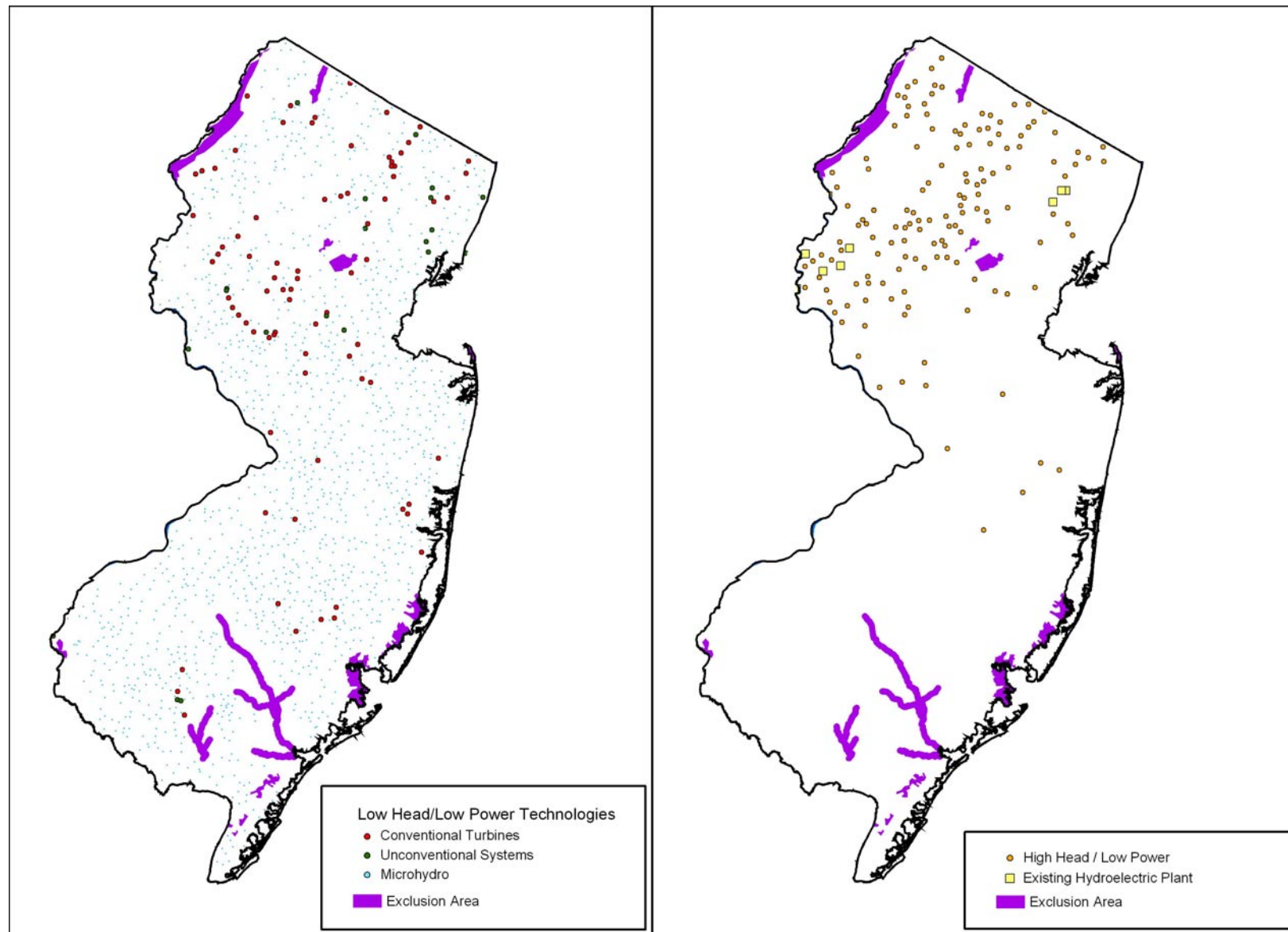
Figure B-150. Low head/low power and high head/low power water energy sites, and existing hydroelectric plants in New Jersey.
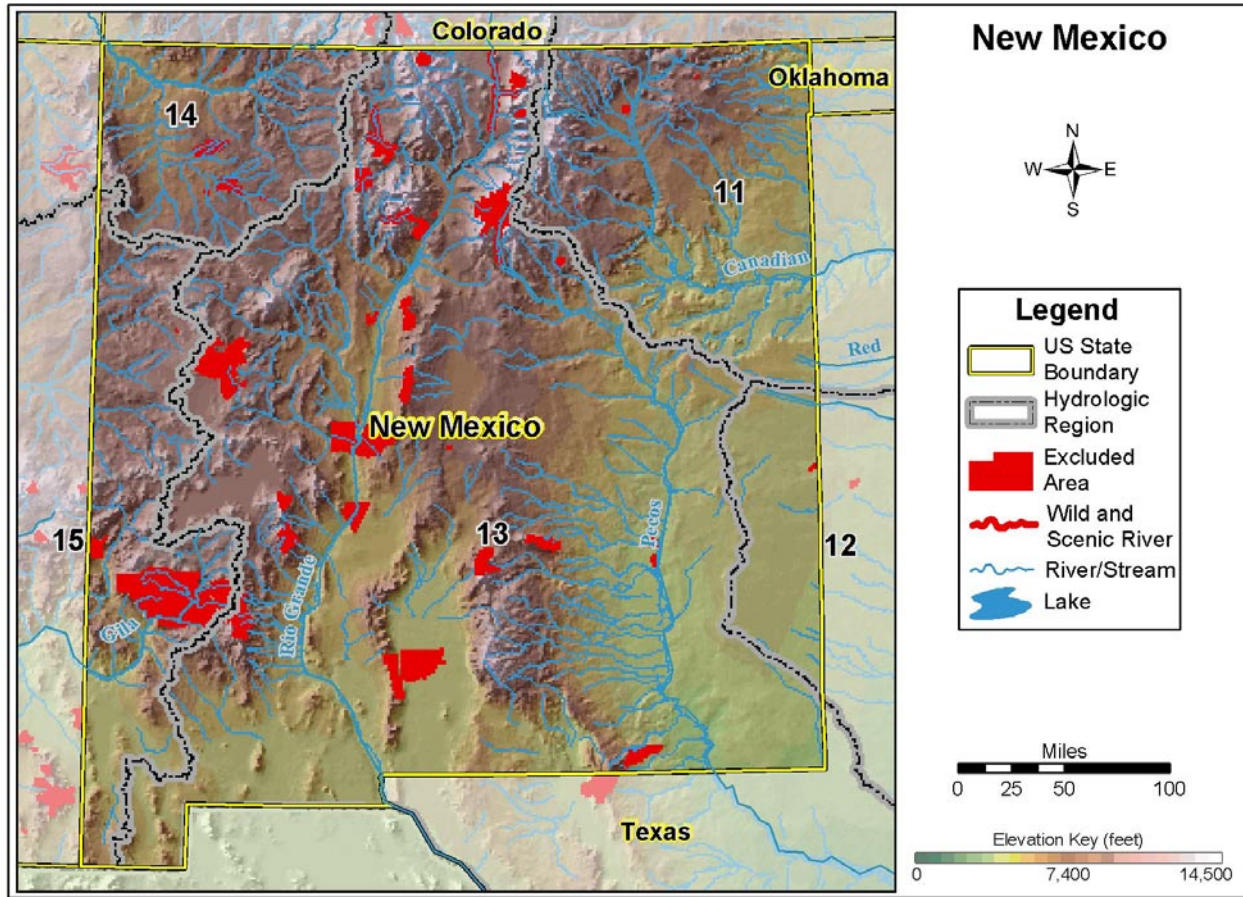
B.31 New Mexico

Figure B-151. New Mexico.

Table B-31. Summary of results of hydropower resource assessment of New Mexico.

Annual Mean Power (MW)	Total	Developed	Excluded	Available[a]
TOTAL POWER	**1,729**	**30**	**368**	**1,331**
TOTAL HIGH POWER	**595**	**30**	**182**	**383**
High Head/High Power	488	30	177	281
Low Head/High Power	107	0	5	102
TOTAL LOW POWER	**1,134**	**0**	**186**	**948**
High Head/Low Power	630	0	140	490
Low Head/Low Power	504	0	46	458
Conventional Turbine	124	0	14	110
Unconventional Systems	40	0	4	36
Microhydro	340	0	28	312

a. No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.
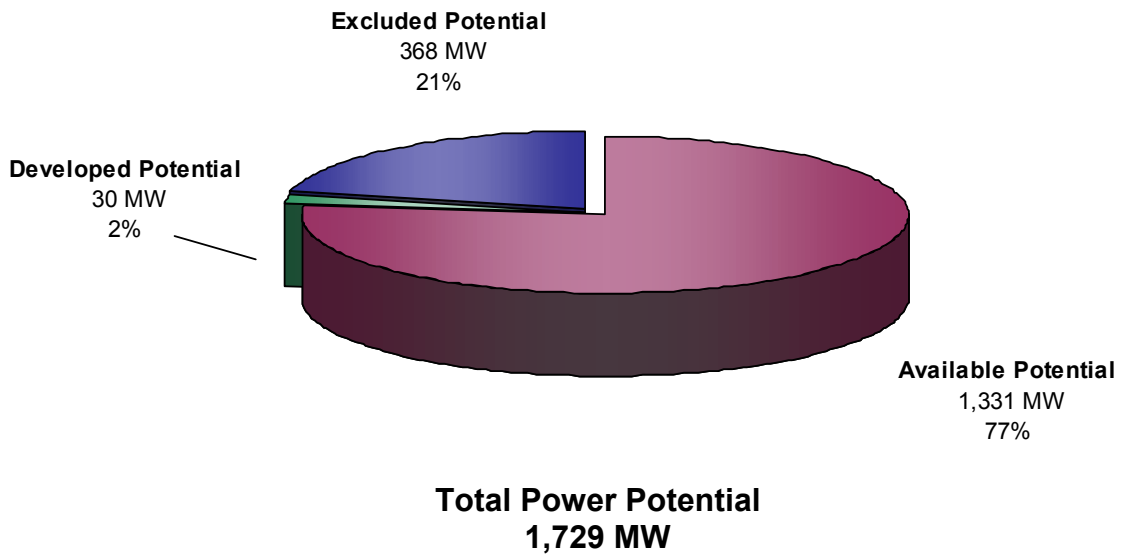
Excluded Potential
368 MW
21%

Developed Potential
30 MW
2%

Available Potential
1,331 MW
77%

Total Power Potential
1,729 MW

Figure B-152. Power category distribution of the total power potential (annual mean power) of water energy resources in New Mexico.

High Power
383 MW
29%

High Head/Low Power
490 MW
37%

Low Head/Low Power
458 MW
34%

Total Available Potential
1,331 MW
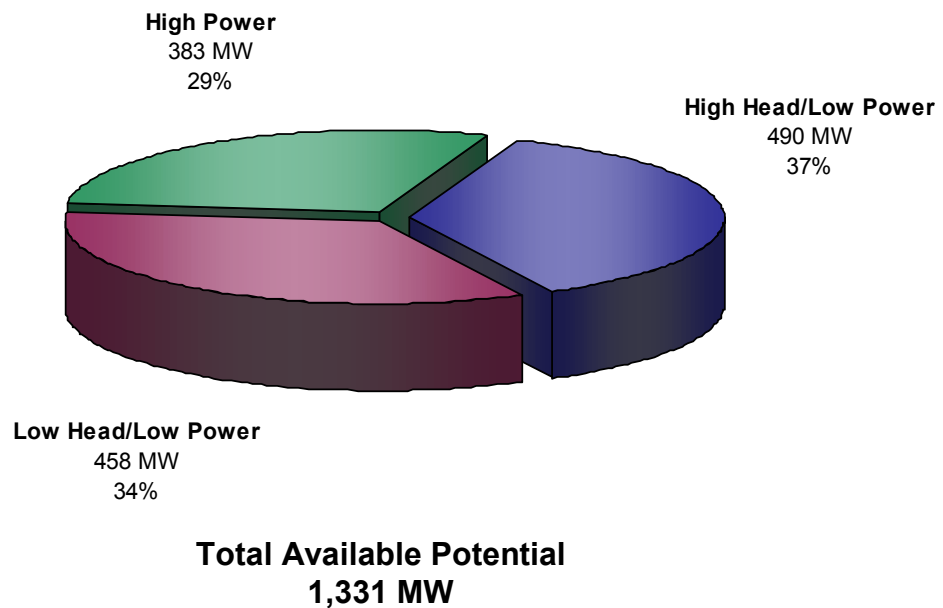
Figure B-153. Power class distribution of the available power potential (annual mean power) of water energy resources in New Mexico.

Microhydro Total
340 MW
Microhydro Developed & Excluded
28 MW

Microhydro Available
312 MW
(68% of total available)

Conventional Turbines Total
124 MW
Conventional Turbines Available
110 MW
(24% of total available)

Conventional Turbines Developed and Excluded
14 MW

Unconventional Systems Total
40 MW
Unconventional Systems Available
36 MW
(8% of total available)

Unconventional Systems Developed & Excluded
4 MW

Low Head/Low Power Totals
Total Potential: **504 MW**
Developed Potential: **0 MW**
Excluded Potential: **46 MW**
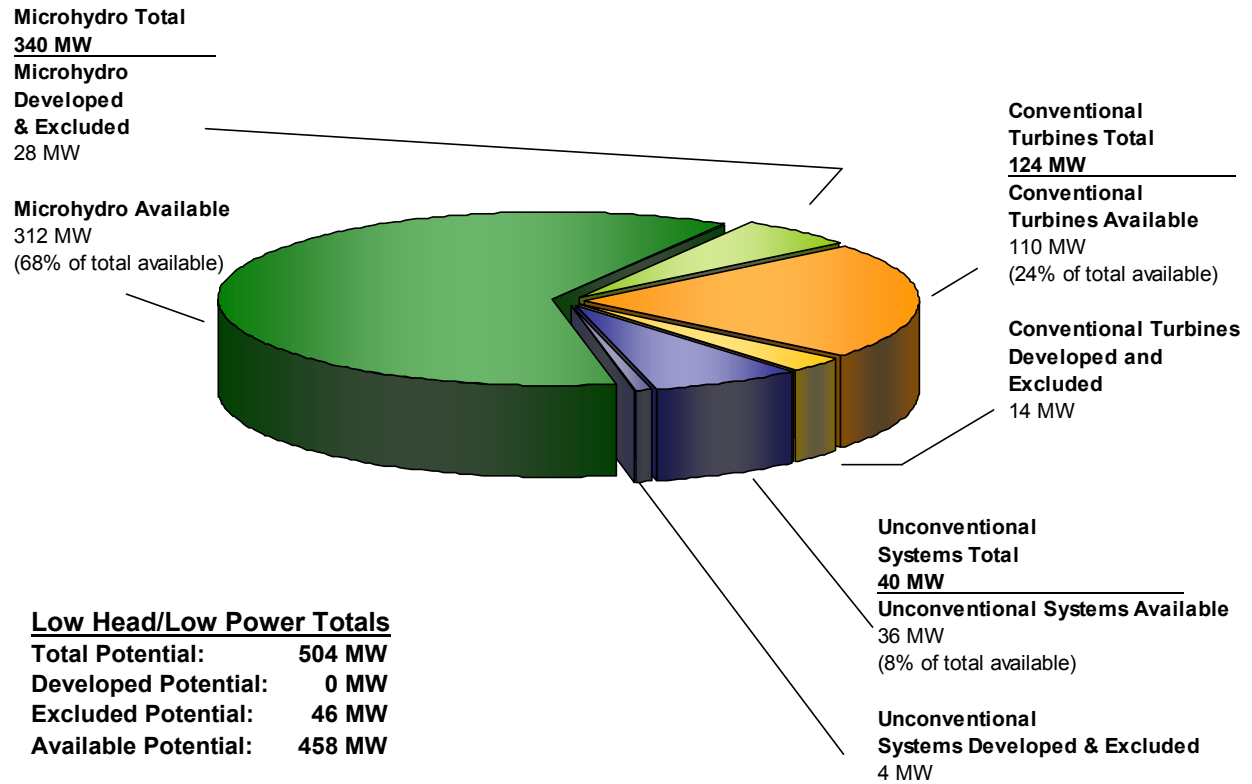**Available Potential:** **458 MW**

Figure B-154. Distribution of the low head/low power power potential (annual mean power) of water energy resources in New Mexico among three low head/low power hydropower technology classes.
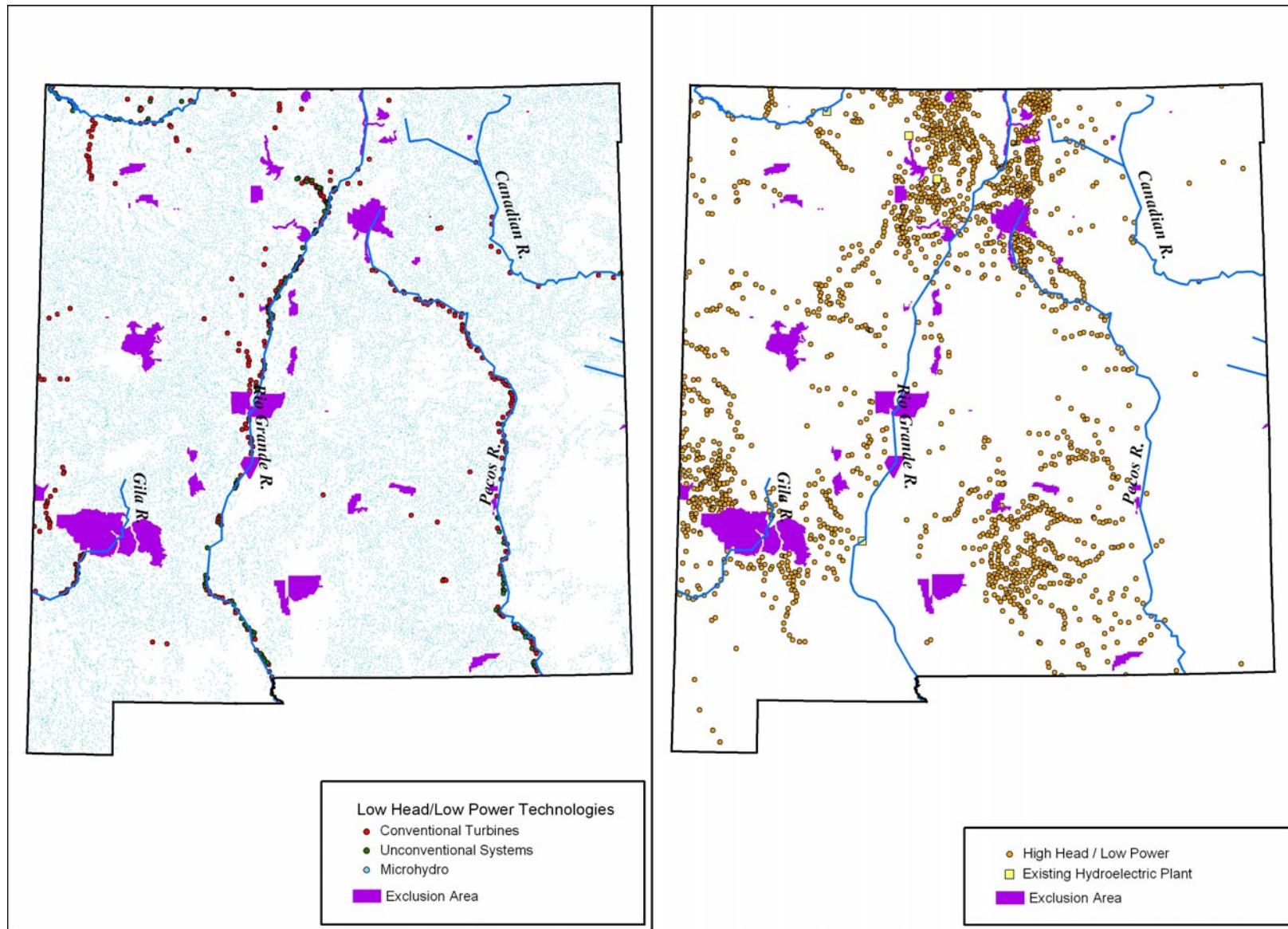
Figure B-155. Low head/low power and high head/low power water energy sites, and existing hydroelectric plants in New Mexico.
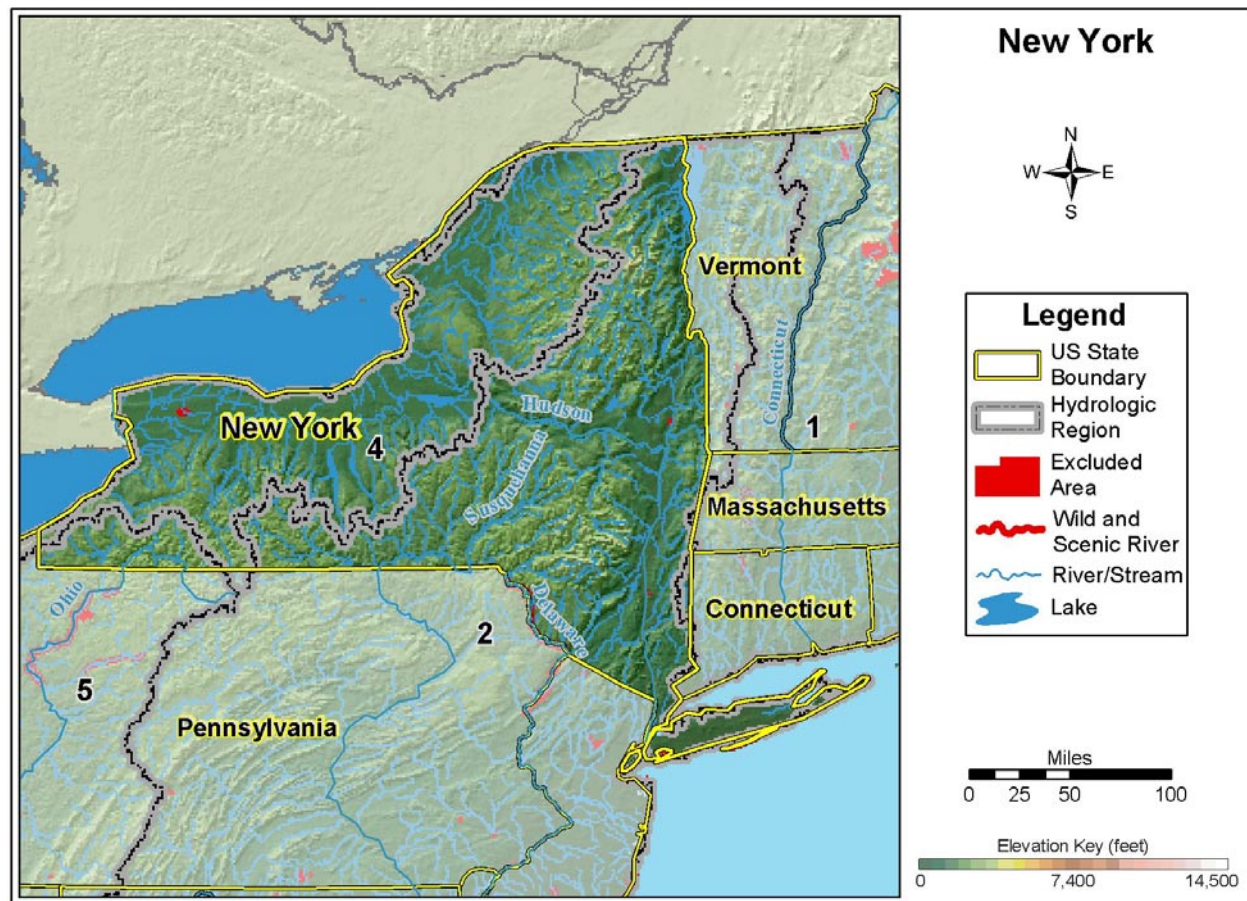
B.32 New York

Figure B-156. New York.

Table B-32. Summary of results of hydropower resource assessment of New York.

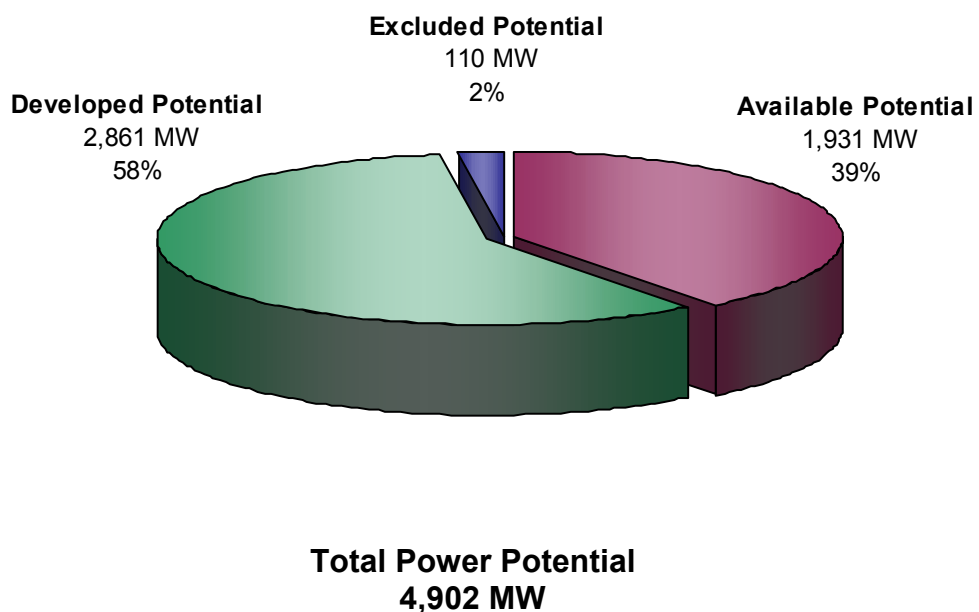| Annual Mean Power (MW)	Total	Developed	Excluded	Available[a]
TOTAL POWER	**4,902**	**2,861**	**110**	**1,931**
TOTAL HIGH POWER	**3,345**	**2,817**	**99**	**429**
High Head/High Power	2,790	2,711	35	44
Low Head/High Power	555	106	64	385
TOTAL LOW POWER	**1,557**	**44**	**11**	**1,502**
High Head/Low Power	1,063	20	7	1,036
Low Head/Low Power	494	24	4	466
Conventional Turbine	194	24	0	170
Unconventional Systems	72	0	3	69
Microhydro	228	0	1	227
a. No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.				

Excluded Potential
110 MW
2%

Developed Potential
2,861 MW
58%

Available Potential
1,931 MW
39%

Total Power Potential
4,902 MW

Figure B-157. Power category distribution of the total power potential (annual mean power) of water energy resources in New York.

High Power
429 MW
22%

Low Head/Low Power
466 MW
24%

High Head/Low Power
1,036 MW
54%

Total Available Potential
1,931 MW
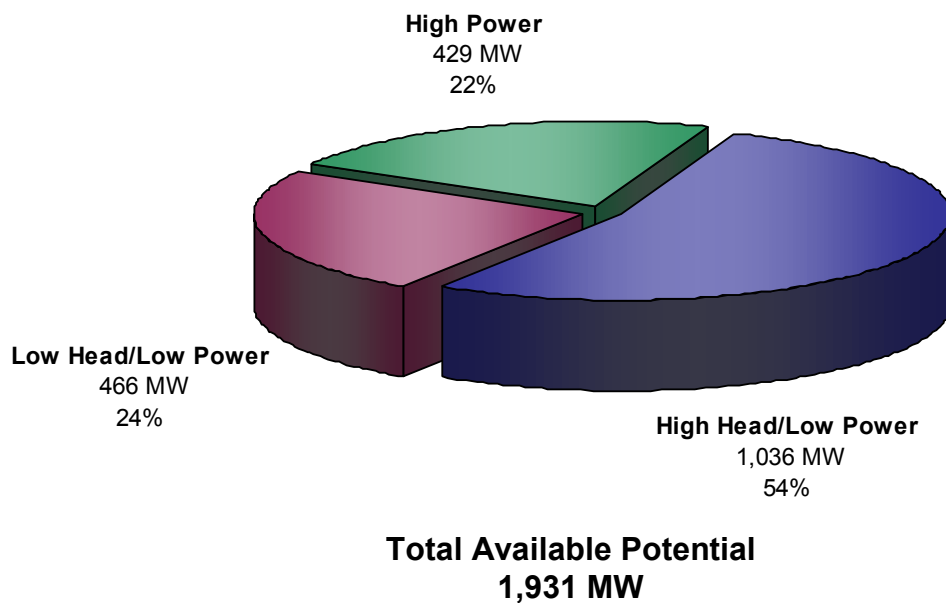
Figure B-158. Power class distribution of the available power potential (annual mean power) of water energy resources in New York.

Microhydro Total
228 MW
Microhydro Developed
& Excluded
1 MW

Microhydro Available
227 MW
(49% of total available)

Conventional
Turbines Total
194 MW
Conventional
Turbines Available
170 MW
(36% of total available)

Conventional Turbines
Developed and Excluded
24 MW

Unconventional
Systems Total
72 MW
Unconventional Systems Available
69 MW
(15% of total available)

Unconventional
Systems Developed & Excluded
3 MW

Low Head/Low Power Totals
Total Potential: **494 MW**
Developed Potential: **24 MW**
Excluded Potential: **4 MW**
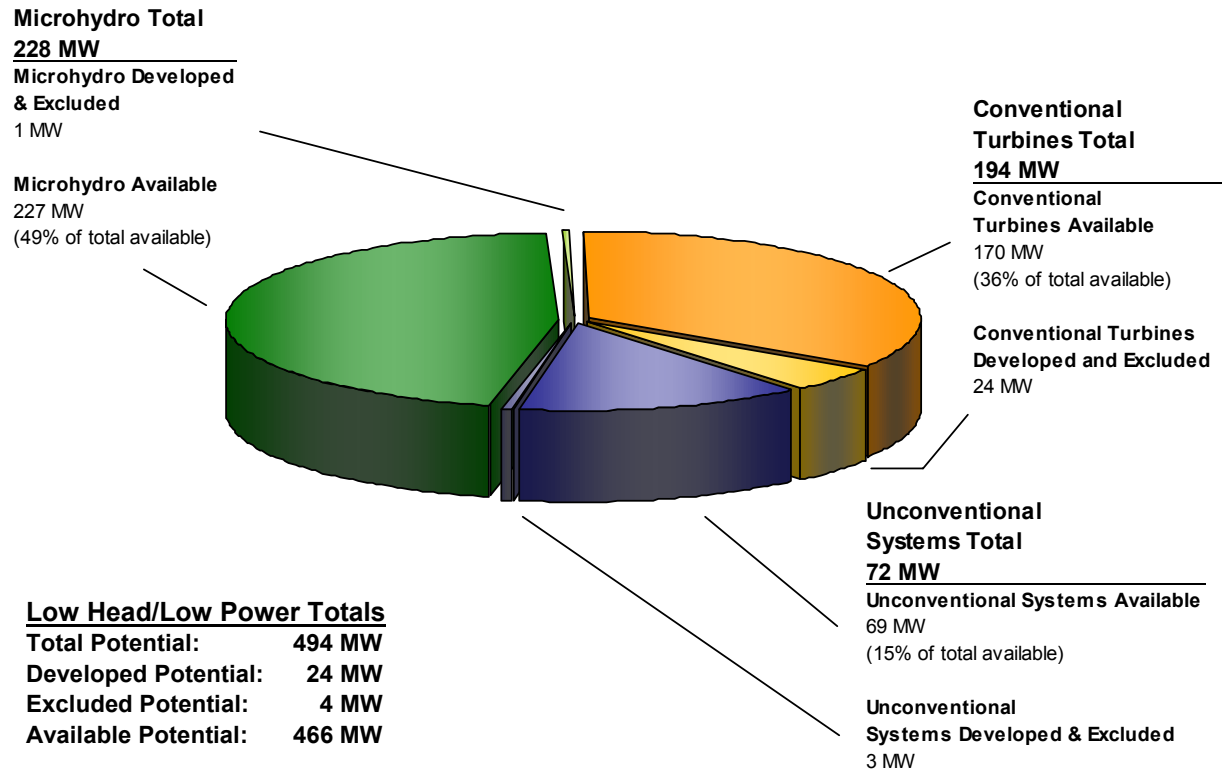**Available Potential:**   **466 MW**

Figure B-159. Distribution of the low head/low power power potential (annual mean power) of water energy resources in New York among three low head/low power hydropower technology classes.
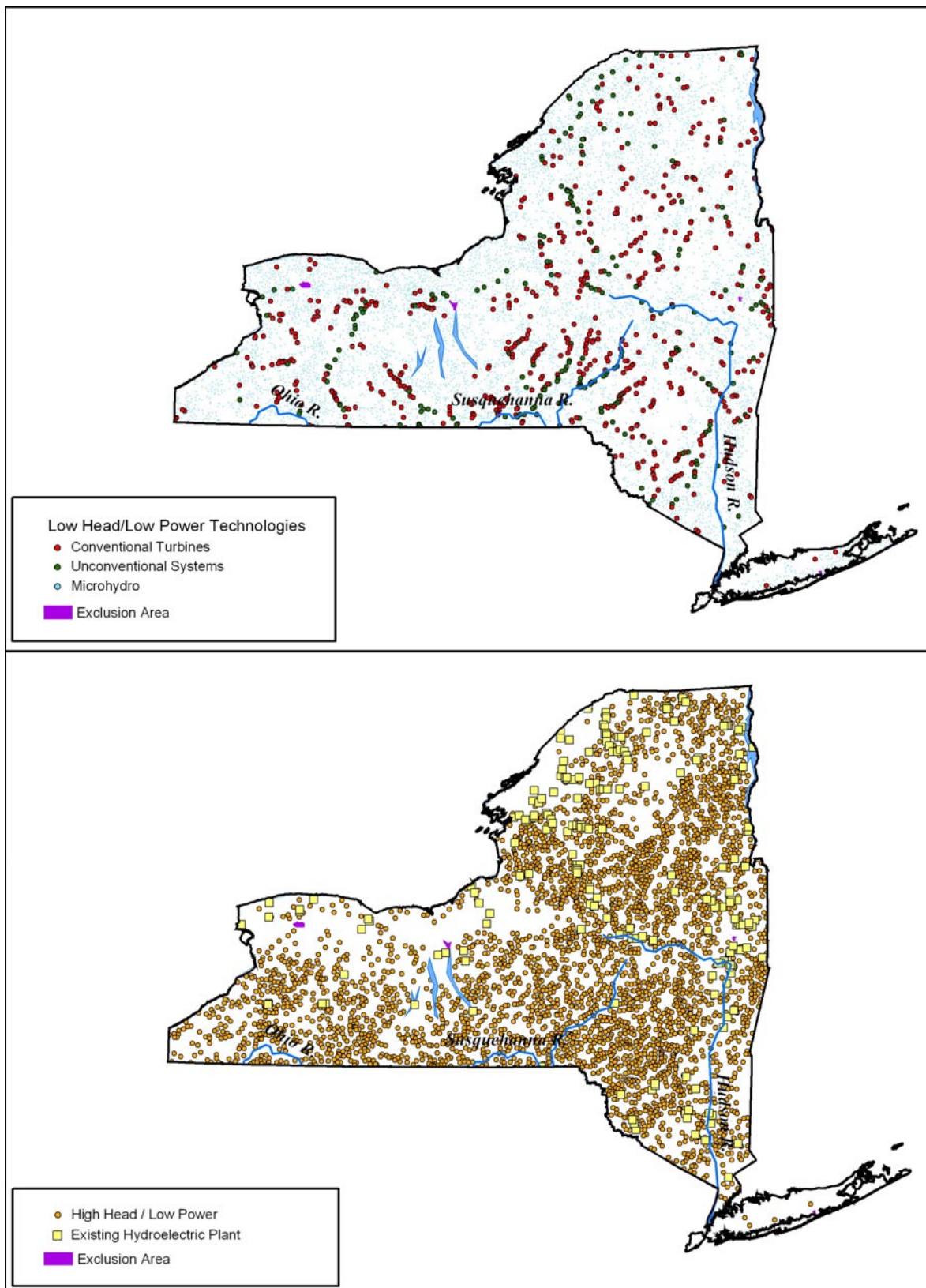
Figure B-160. Low head/low power and high head/low power water energy sites, and existing hydroelectric plants in New York.
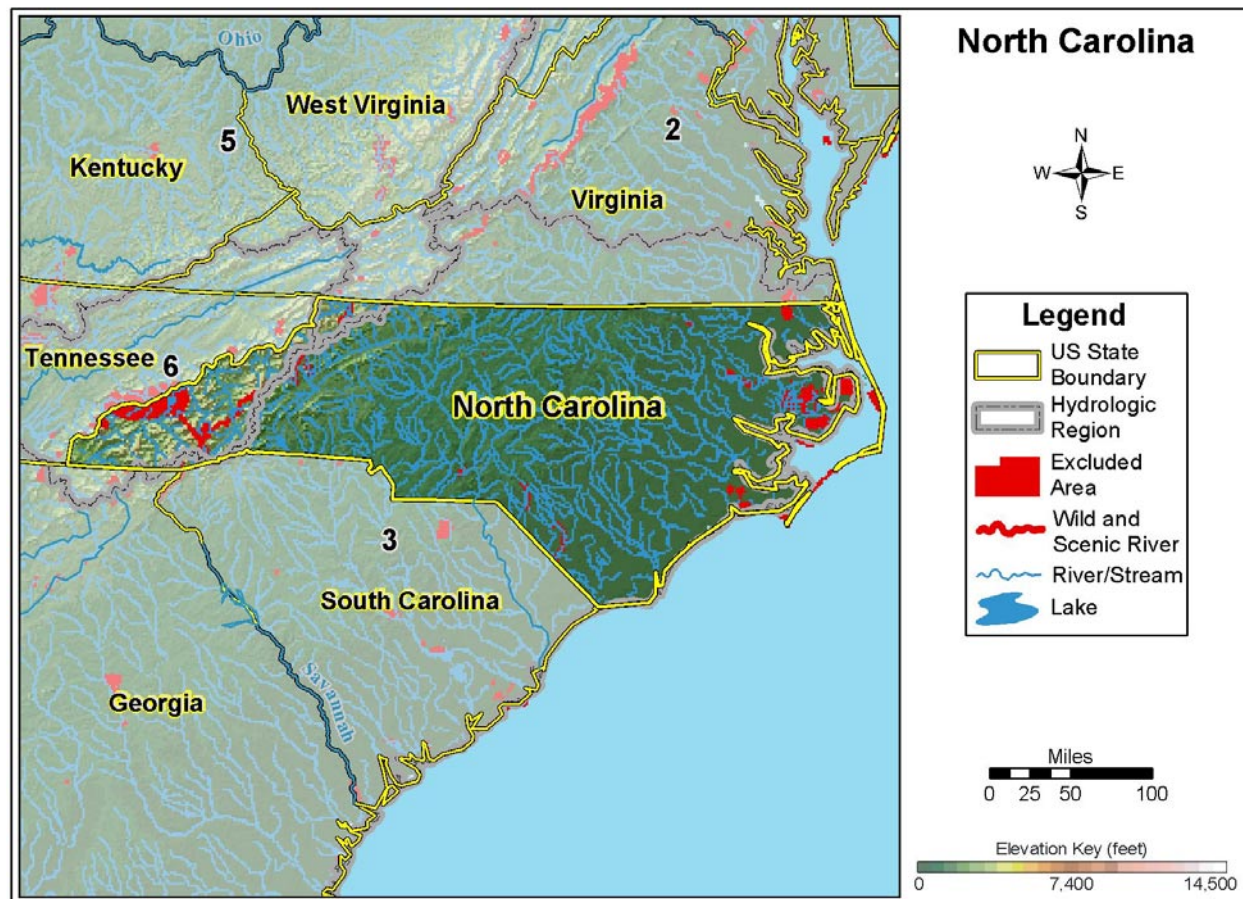
B.33 North Carolina

Figure B-161. North Carolina.

Table B-33. Summary of results of hydropower resource assessment of North Carolina.

| Annual Mean Power (MW)	Total	Developed	Excluded	Available[a]
TOTAL POWER	**2,750**	**610**	**491**	**1,649**
TOTAL HIGH POWER	**1,896**	**596**	**389**	**911**
High Head/High Power	1,615	592	369	654
Low Head/High Power	281	4	20	257
TOTAL LOW POWER	**854**	**14**	**102**	**738**
High Head/Low Power	470	6	86	378
Low Head/Low Power	384	8	16	360
Conventional Turbine	131	7	7	117
Unconventional Systems	74	0	3	71
Microhydro	179	1	6	172
a. No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.				

Total Power Potential
2,750 MW
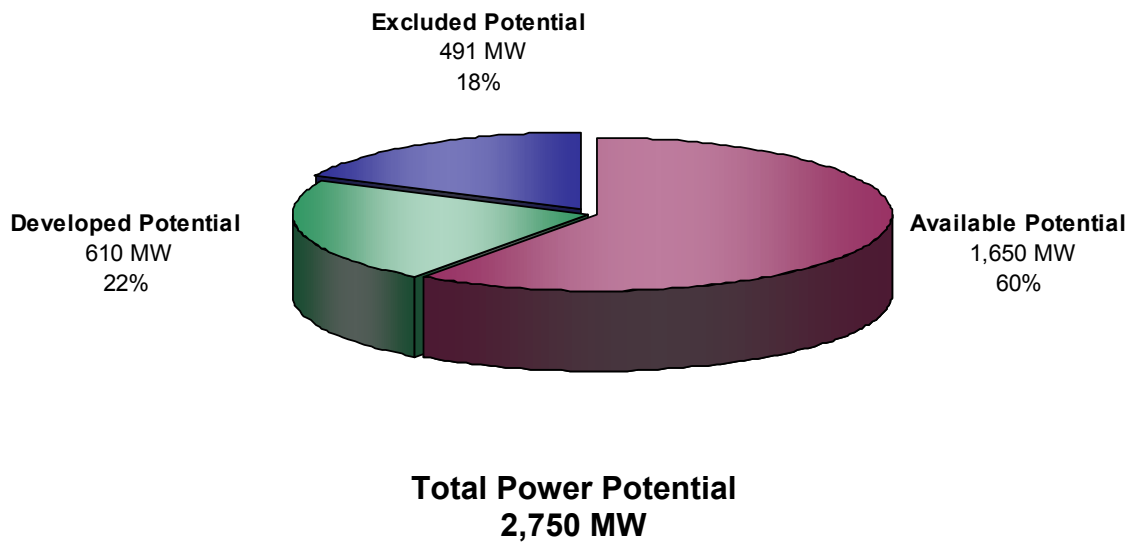
Figure B-162. Power category distribution of the total power potential (annual mean power) of water energy resources in North Carolina.
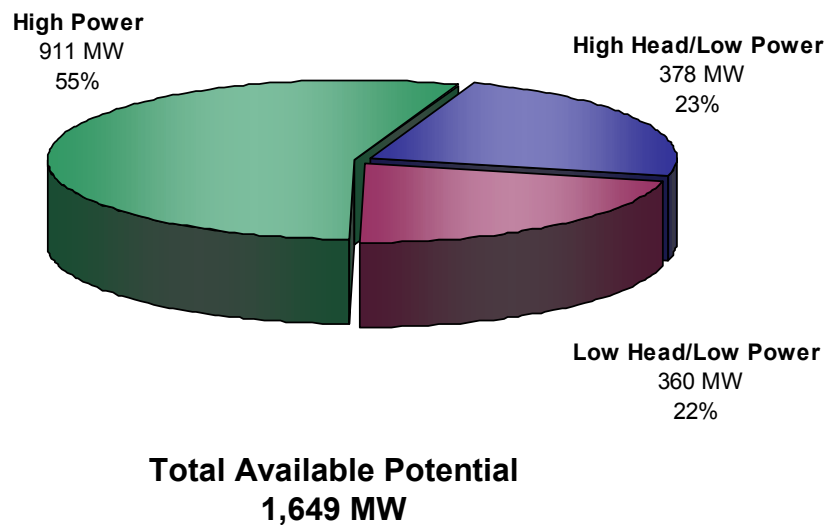

Total Available Potential
1,649 MW

Figure B-163. Power class distribution of the available power potential (annual mean power) of water energy resources in North Carolina.

Microhydro Total
179 MW
Microhydro Developed
& Excluded
7 MW

Microhydro Available
172 MW
(48% of total available)

Conventional
Turbines Total
131 MW
Conventional
Turbines Available
117 MW
(33% of total available)

Conventional Turbines
Developed and Excluded
14 MW

Unconventional
Systems Total
74 MW
Unconventional Systems Available
71 MW
(19% of total available)

Unconventional
Systems Developed & Excluded
3 MW

Low Head/Low Power Totals
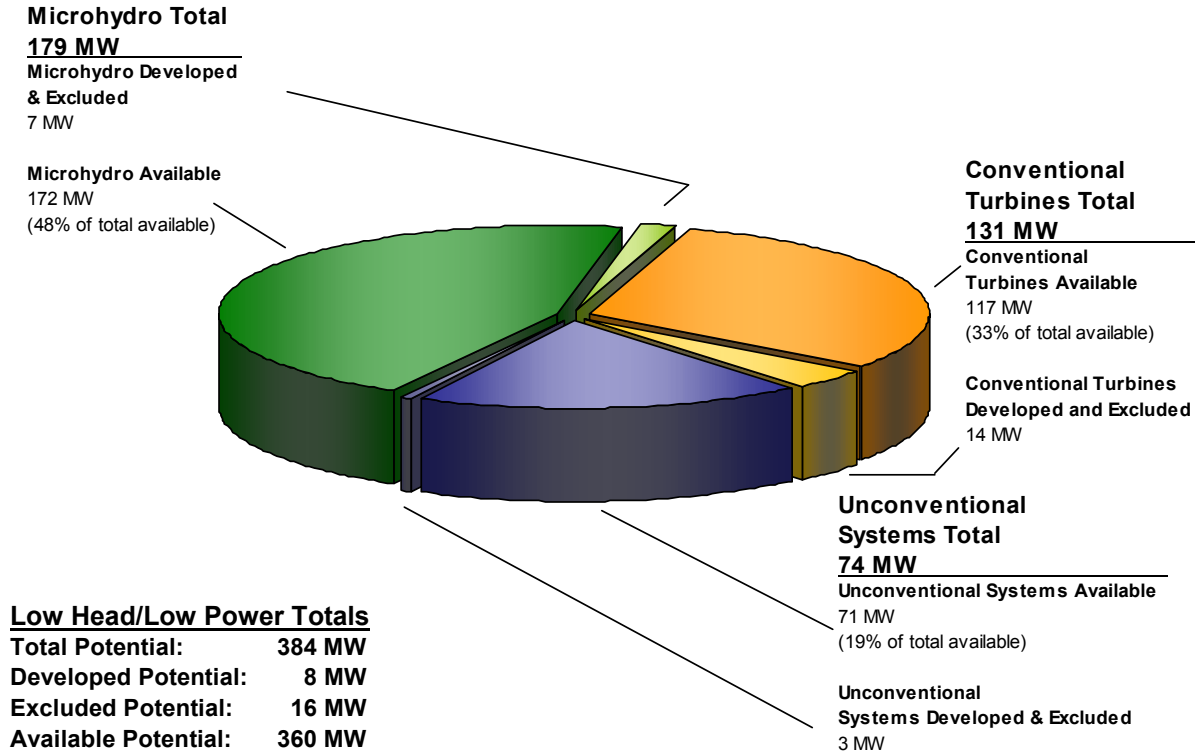|	
Total Potential:	**384 MW**
Developed Potential:	**8 MW**
Excluded Potential:	**16 MW**
Available Potential:	**360 MW**

Figure B-164. Distribution of the low head/low power power potential (annual mean power) of water energy resources in North Carolina among three low head/low power hydropower technology classes.
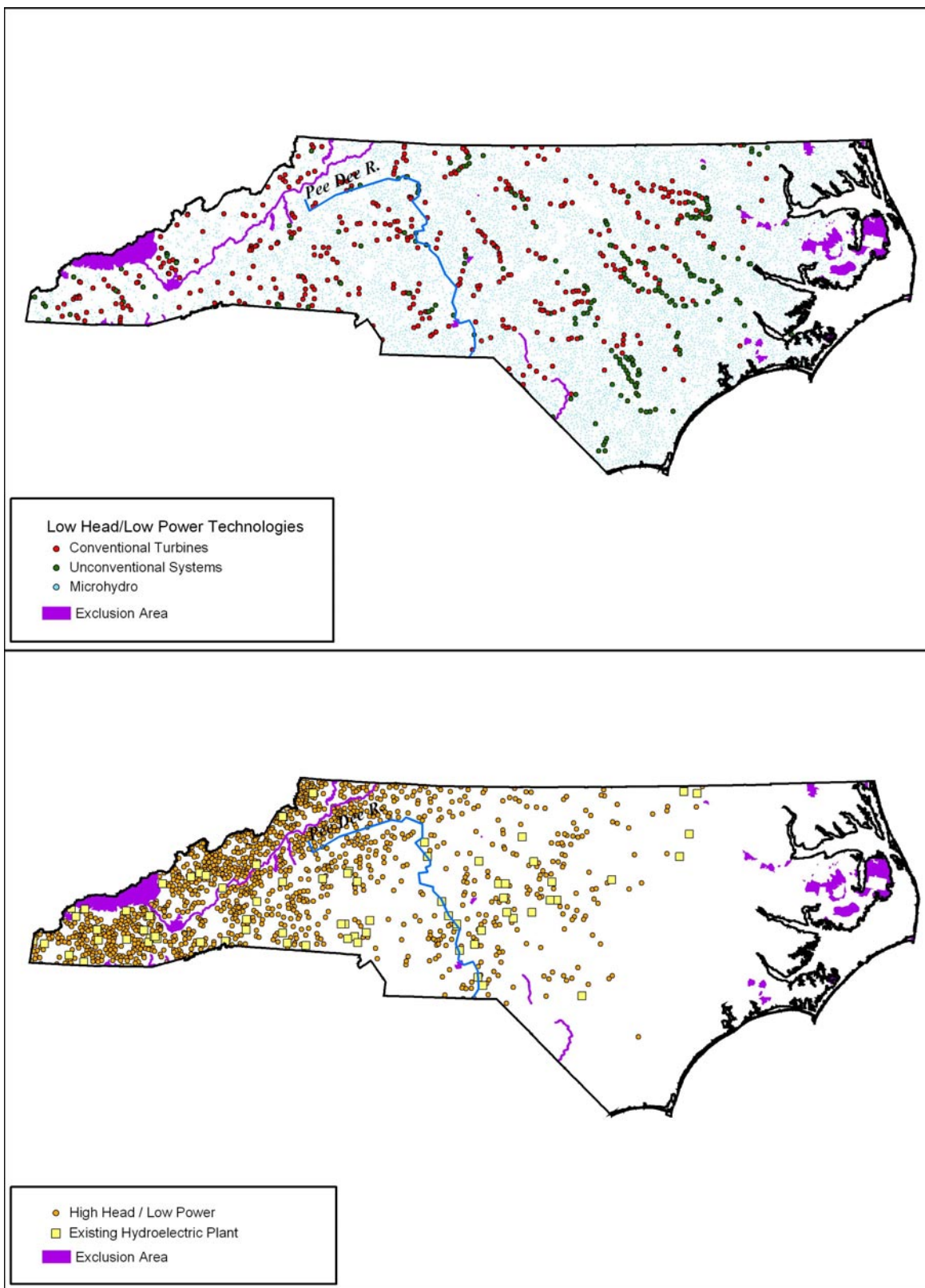
Figure B-165. Low head/low power and high head/low power water energy sites, and existing hydroelectric plants in North Carolina.
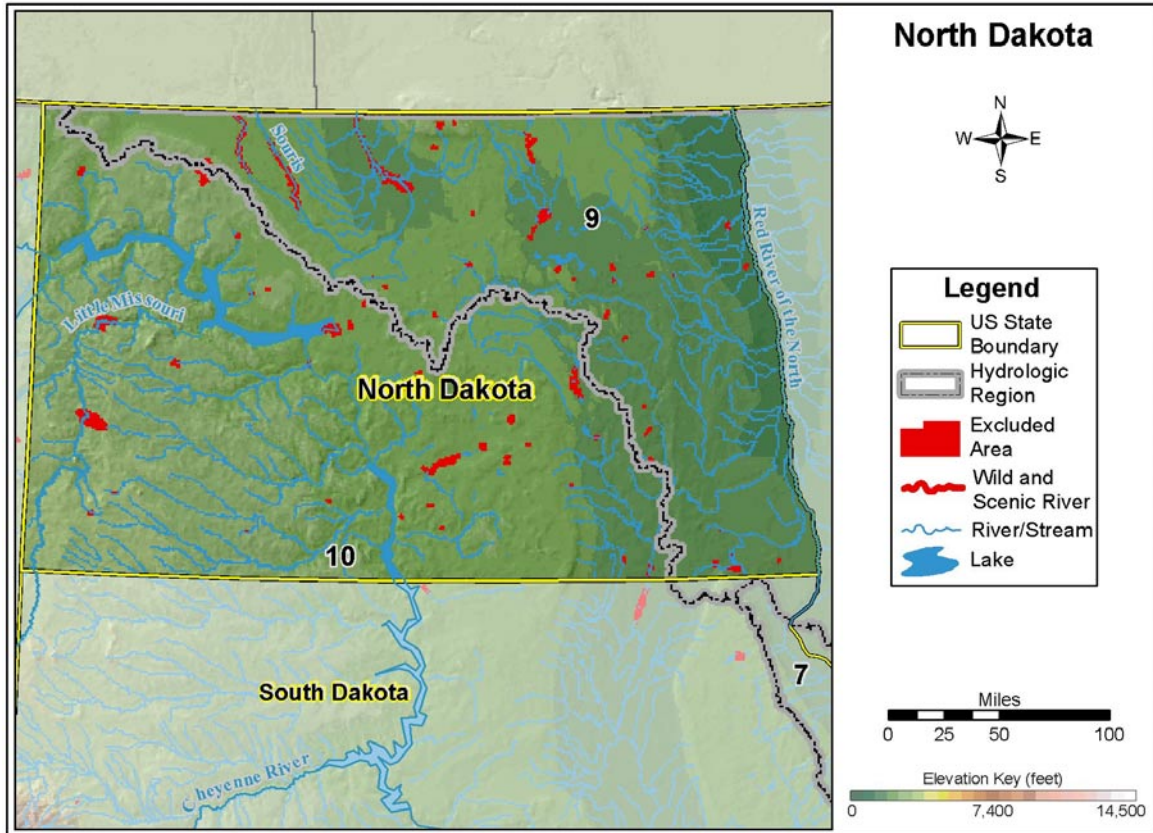
B.34 North Dakota

Figure B-166. North Dakota.

Table B-34. Summary of results of hydropower resource assessment of North Dakota.

Annual Mean Power (MW)	Total	Developed[a]	Excluded	Available[a,b]
TOTAL POWER	289	270	8	11
TOTAL HIGH POWER	132	128	4	0
High Head/High Power	82	82	0	0
Low Head/High Power	50	46	4	0
TOTAL LOW POWER	157	142	4	11
High Head/Low Power	15	15	0	0
Low Head/Low Power	142	127	4	11
Conventional Turbine	37	35	2	0
Unconventional Systems	10	10	0	0
Microhydro	95	82	2	11

a. Developed high head/high power potential exceeded total potential in this power class probably because the developed power is made up of resources in other power classes. This "excess" developed power in the high head/high power class (188 MW) was rolled downward into successively lower power classes in this table to the extent that each lower power class could accommodate additional developed power without creating a negative available potential.

b. No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.

Excluded Potential
8 MW
3%

Available Potential
11 MW
4%

Developed Potential
270 MW
93%

Total Power Potential
289 MW

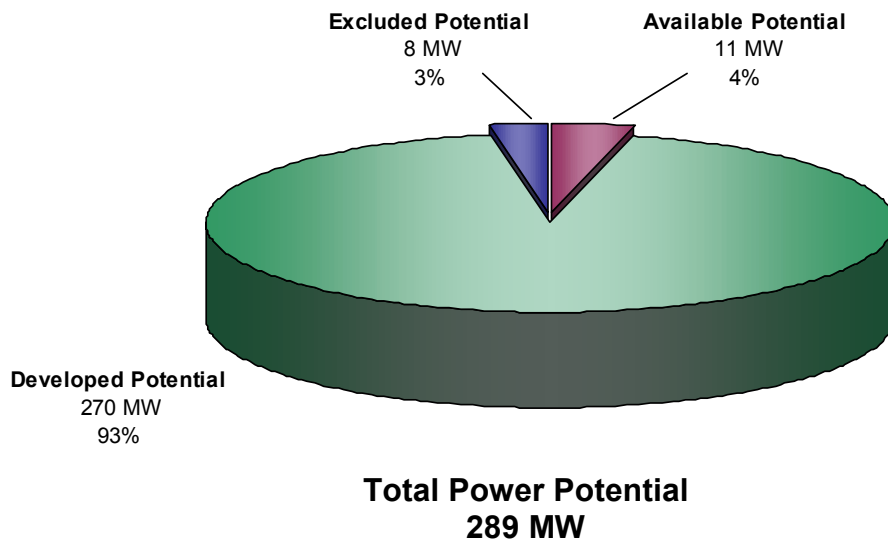Figure B-167. Power category distribution of the total power potential (annual mean power) of water energy resources in North Dakota.

High Power
0 MW
0 %

High Head/Low Power
0 MW
0 %

Low Head/Low Power
11 MW
100 %

Total Available Potential
11 MW
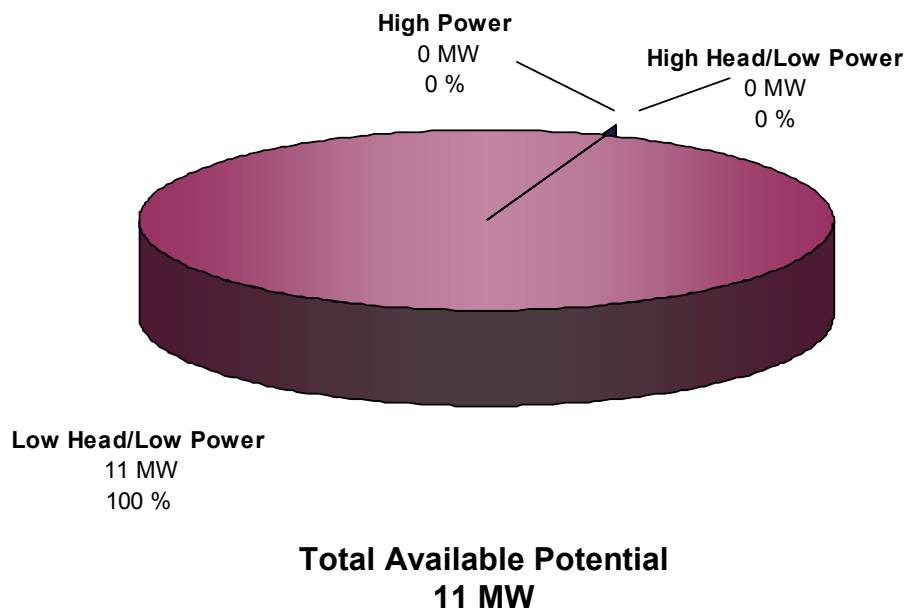
Figure B-168. Power class distribution of the available power potential (annual mean power) of water energy resources in North Dakota.

Microhydro Total
95 MW
Microhydro Developed
& Excluded
84 MW

Microhydro Available
11 MW
(100% of total available)

Conventional
Turbines Total
37 MW
Conventional
Turbines Available
0 MW
(0% of total available)

Conventional Turbines
Developed and Excluded
37 MW

Unconventional
Systems Total
10 MW
Unconventional Systems Available
0 MW
(0% of total available)

Unconventional
Systems Developed & Excluded
10 MW

Low Head/Low Power Totals

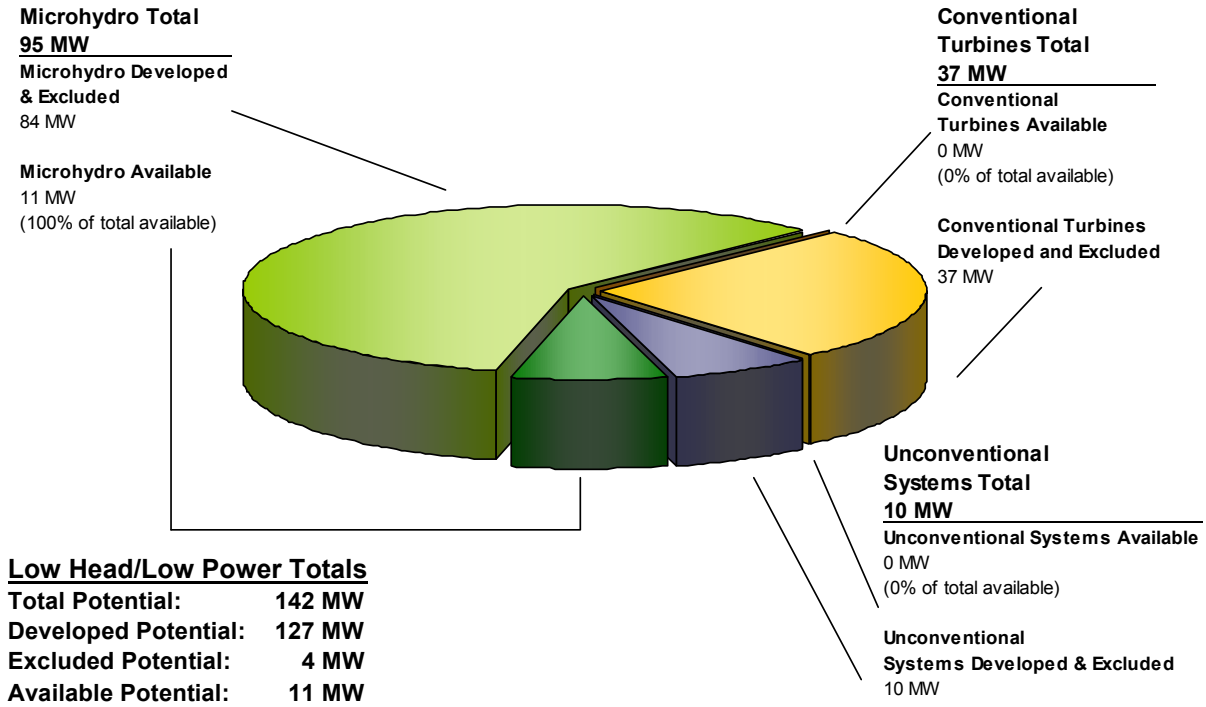|	
Total Potential:	**142 MW**
Developed Potential:	**127 MW**
Excluded Potential:	**4 MW**
Available Potential:	**11 MW**

Figure B-169. Distribution of the low head/low power power potential (annual mean power) of water energy resources in North Dakota among three low head/low power hydropower technology classes.
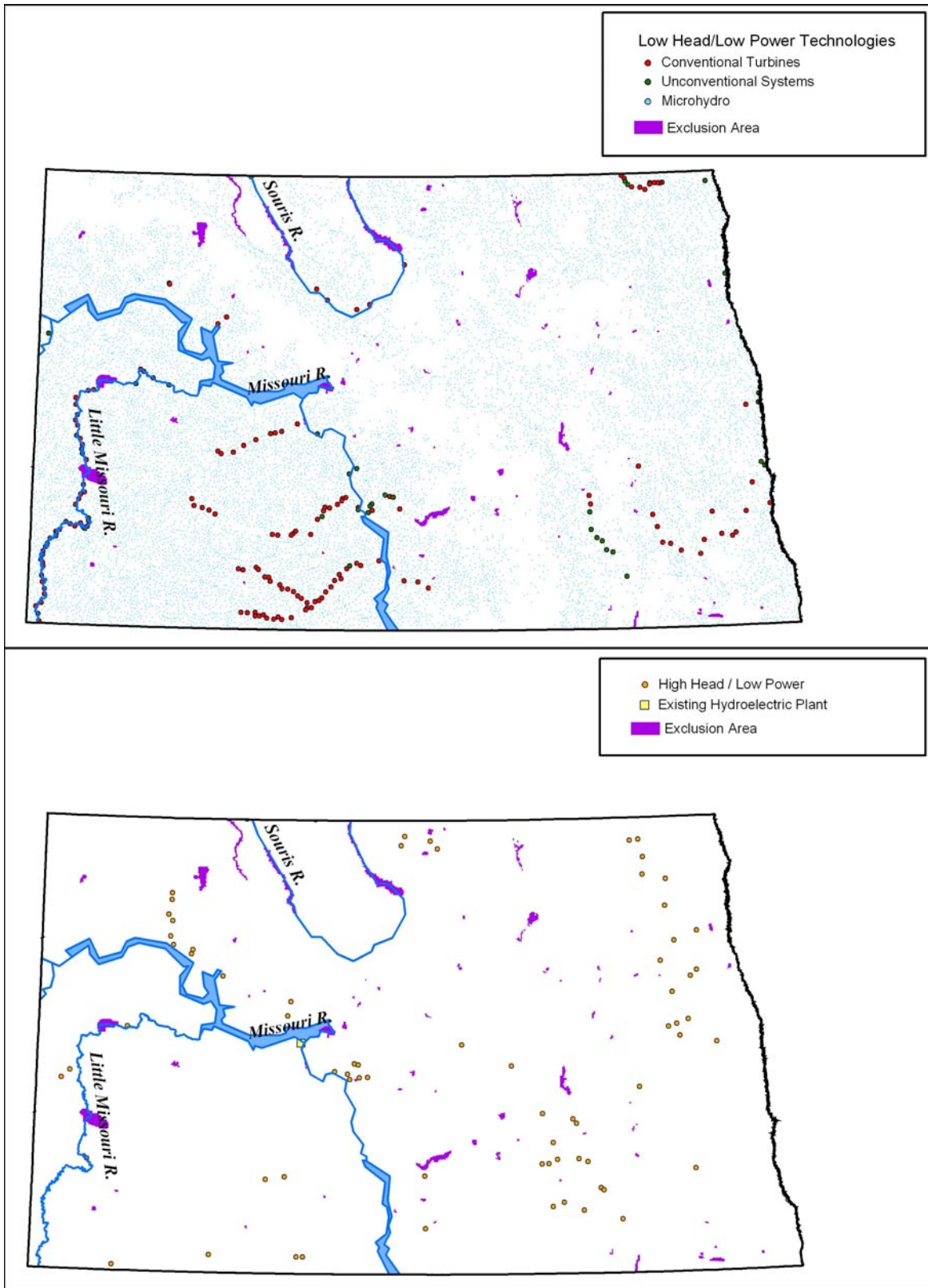
Figure B-170. Low head/low power and high head/low power water energy sites, and existing hydroelectric plants in North Dakota.
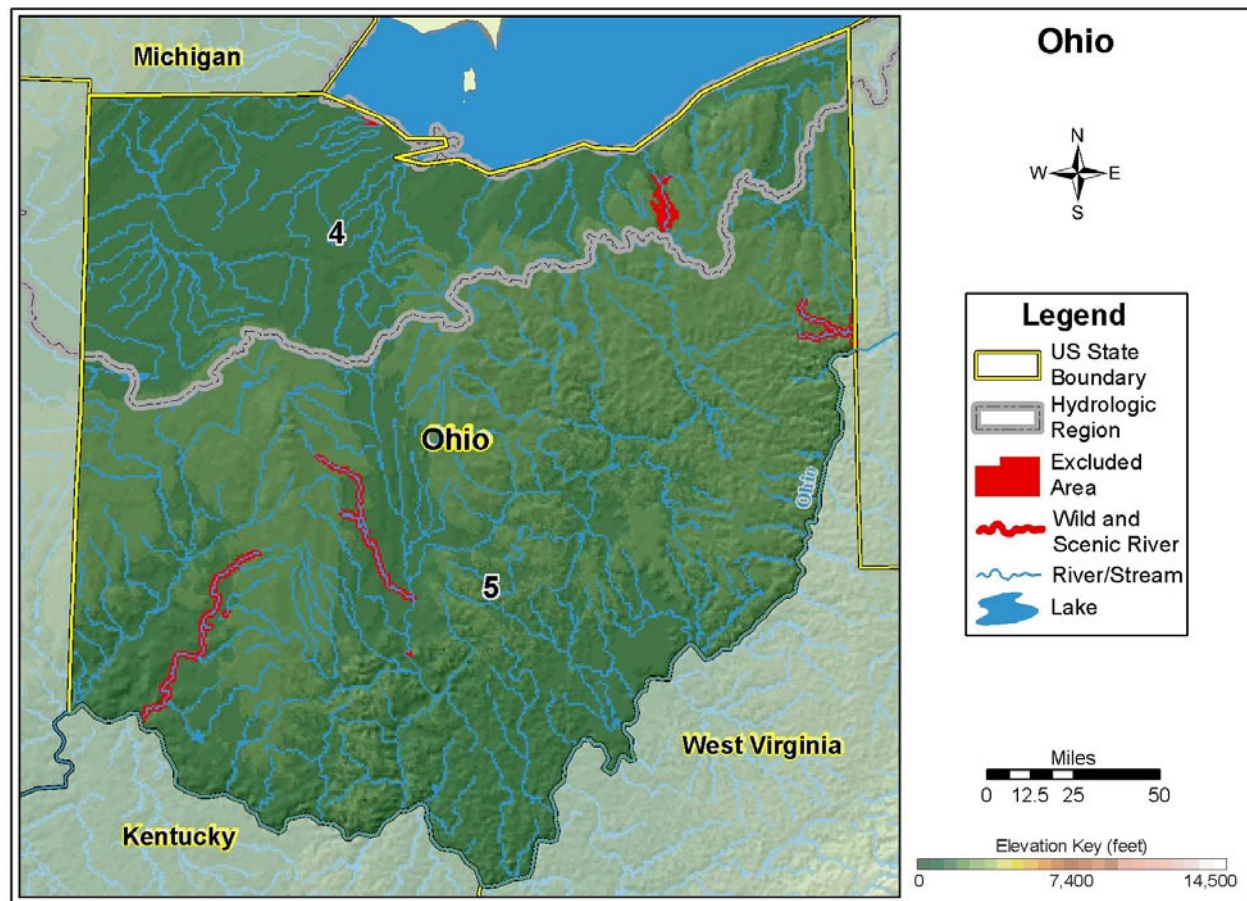
B.35 Ohio

Figure B-171. Ohio.

Table B-35. Summary of results of hydropower resource assessment of Ohio.

Annual Mean Power (MW)	Total	Developed	Excluded	Available[a]
TOTAL POWER	**1,280**	**63**	**81**	**1,136**
TOTAL HIGH POWER	**718**	**63**	**51**	**604**
High Head/High Power	151	36	18	97
Low Head/High Power	567	27	33	507
TOTAL LOW POWER	**562**	**0**	**30**	**532**
High Head/Low Power	150	0	6	144
Low Head/Low Power	412	0	24	388
Conventional Turbine	167	0	15	152
Unconventional Systems	57	0	3	54
Microhydro	188	0	6	182

a. No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.
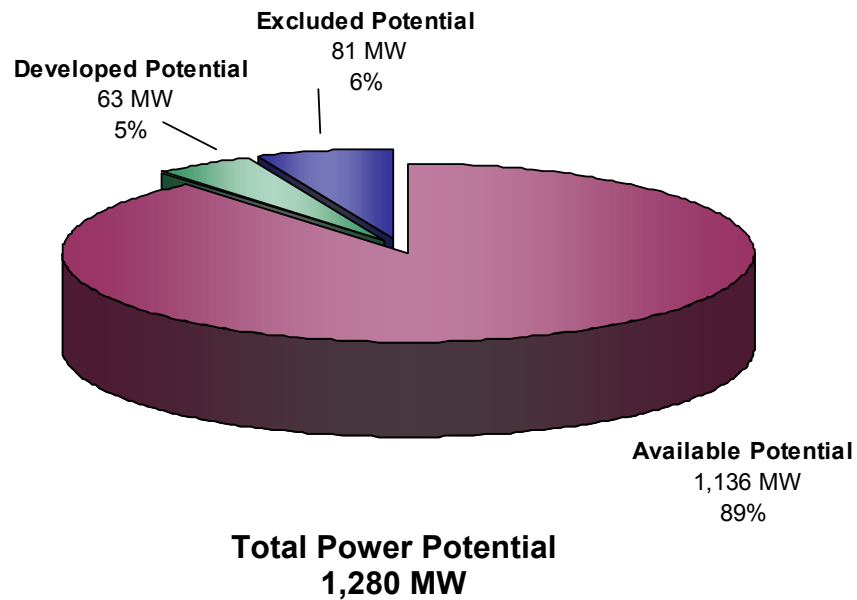
Excluded Potential
81 MW
6%

Developed Potential
63 MW
5%

Available Potential
1,136 MW
89%

Total Power Potential
1,280 MW

Figure B-172. Power category distribution of the total power potential (annual mean power) of water energy resources in Ohio.

High Power
604 MW
53%

High Head/Low Power
144 MW
13%

Low Head/Low Power
388 MW
34%

Total Available Potential
1,136 MW
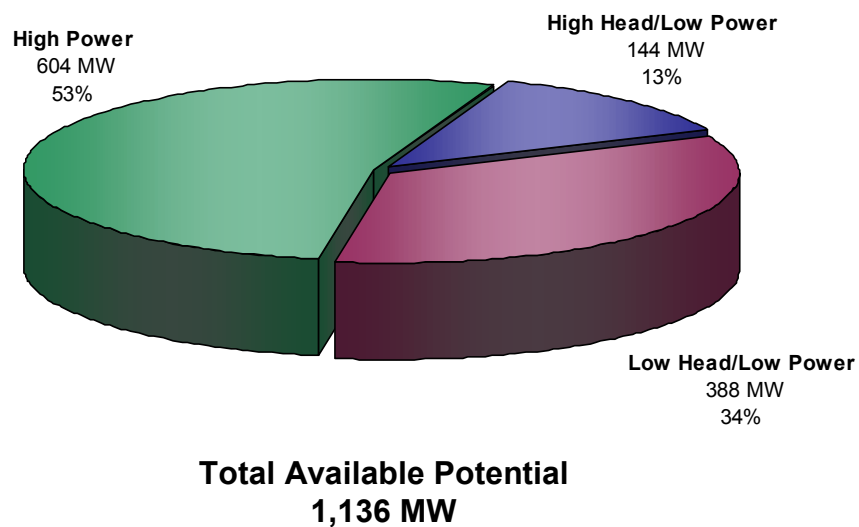
Figure B-173. Power class distribution of the available power potential (annual mean power) of water energy resources in Ohio.

Microhydro Total
188 MW
Microhydro Developed
& Excluded
6 MW

Microhydro Available
182 MW
(47% of total available)

**Conventional
Turbines Total
167 MW**
Conventional
Turbines Available
152 MW
(39% of total available)

Conventional Turbines
Developed and Excluded
15 MW

**Unconventional
Systems Total
57 MW**
Unconventional Systems Available
54 MW
(14% of total available)

Unconventional
Systems Developed & Excluded
3 MW

Low Head/Low Power Totals
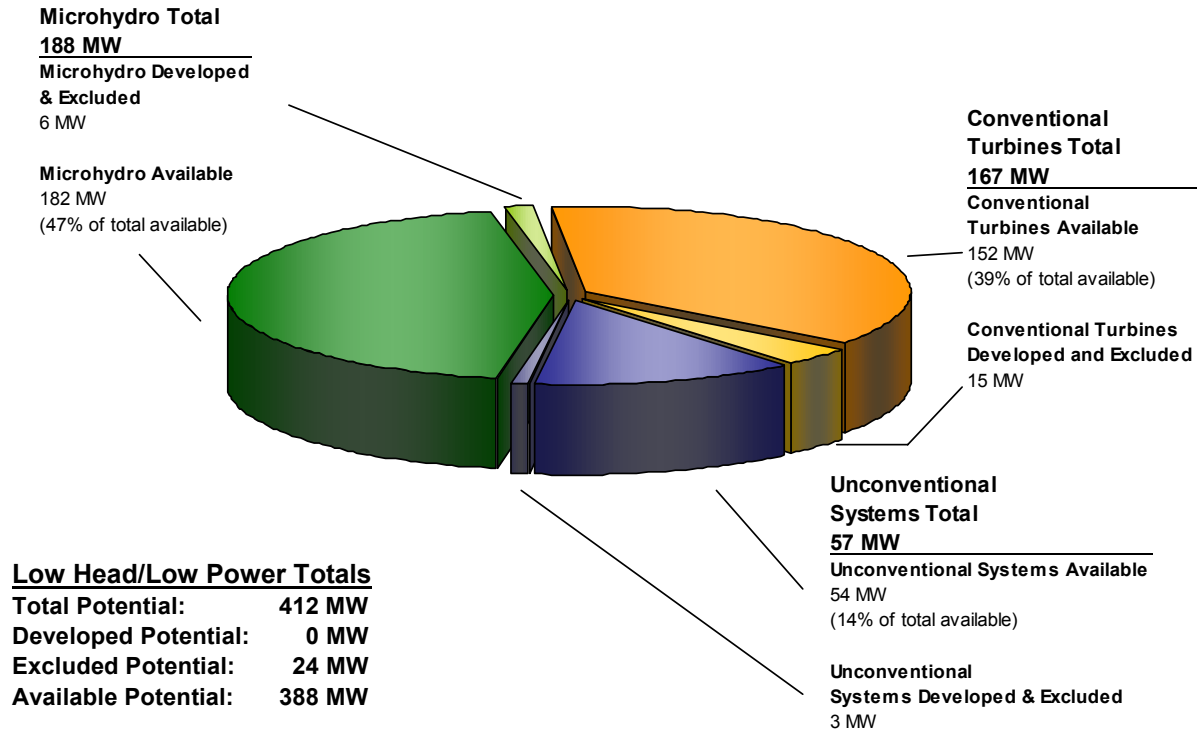|	
Total Potential:	**412 MW**
Developed Potential:	**0 MW**
Excluded Potential:	**24 MW**
Available Potential:	**388 MW**

Figure B-174. Distribution of the low head/low power power potential (annual mean power) of water energy resources in Ohio among three low head/low power hydropower technology classes.
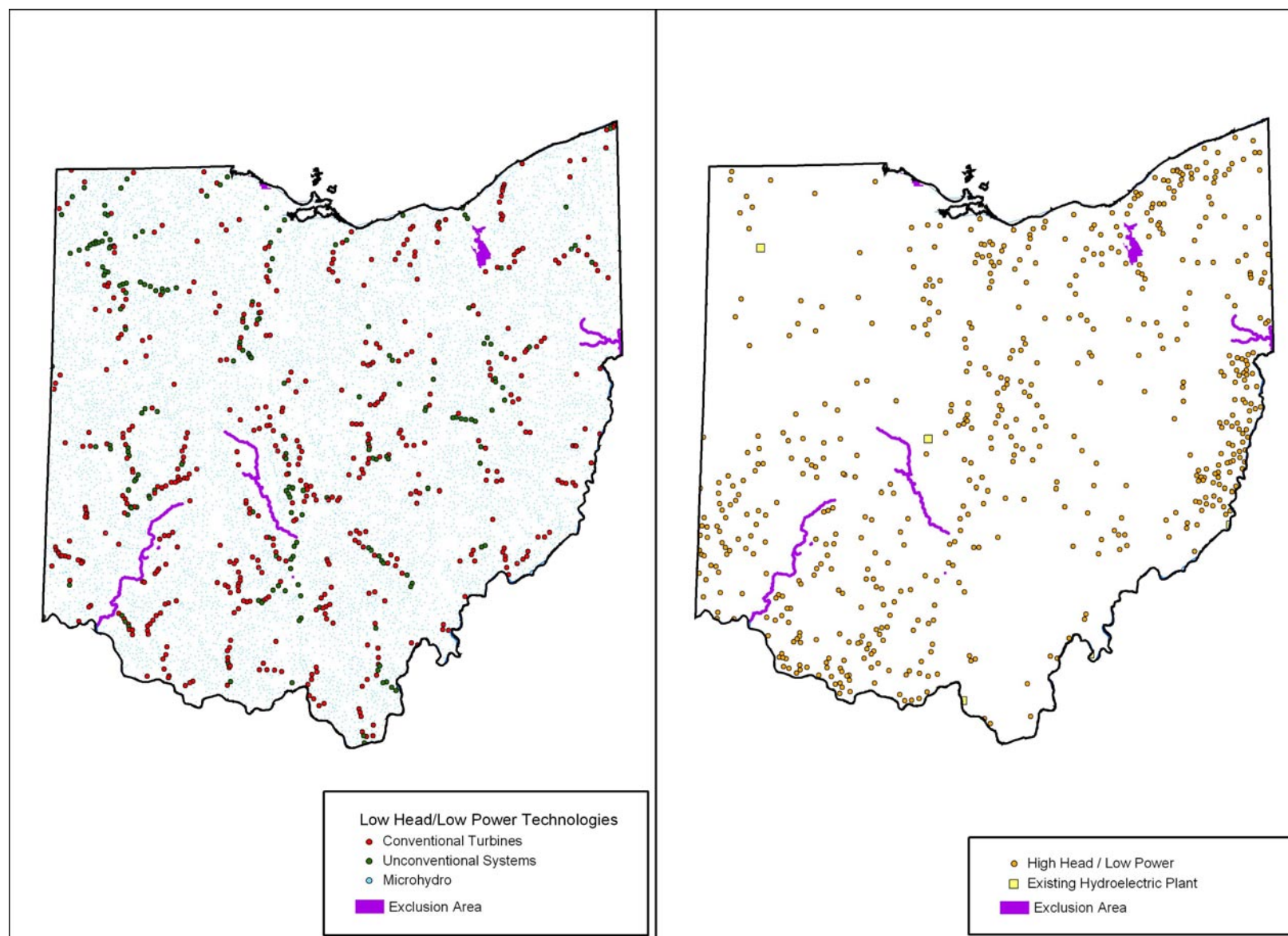
Figure B-175. Low head/low power and high head/low power water energy sites, and existing hydroelectric plants in Ohio.
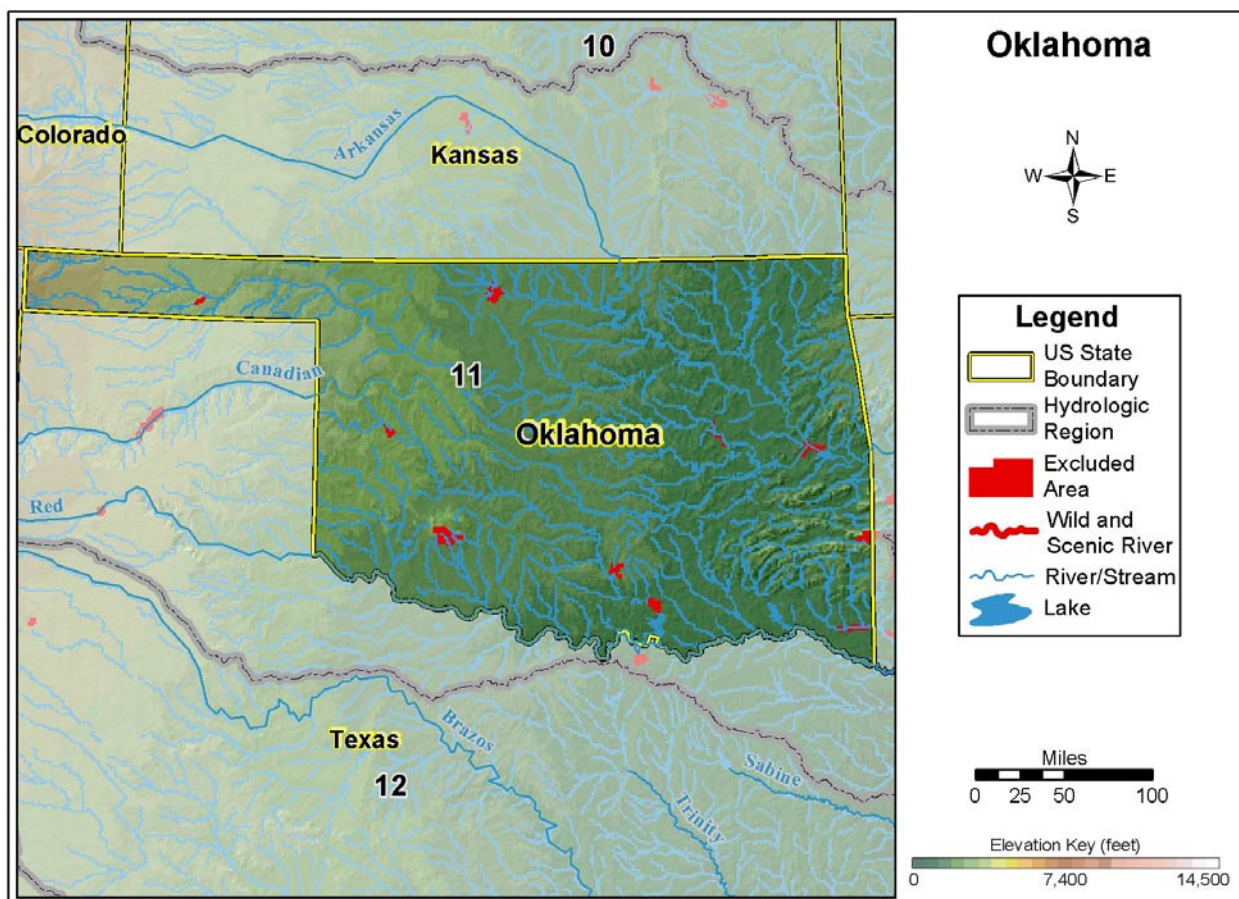
B.36 Oklahoma

Figure B-176. Oklahoma.

Table B-36. Summary of results of hydropower resource assessment of Oklahoma.

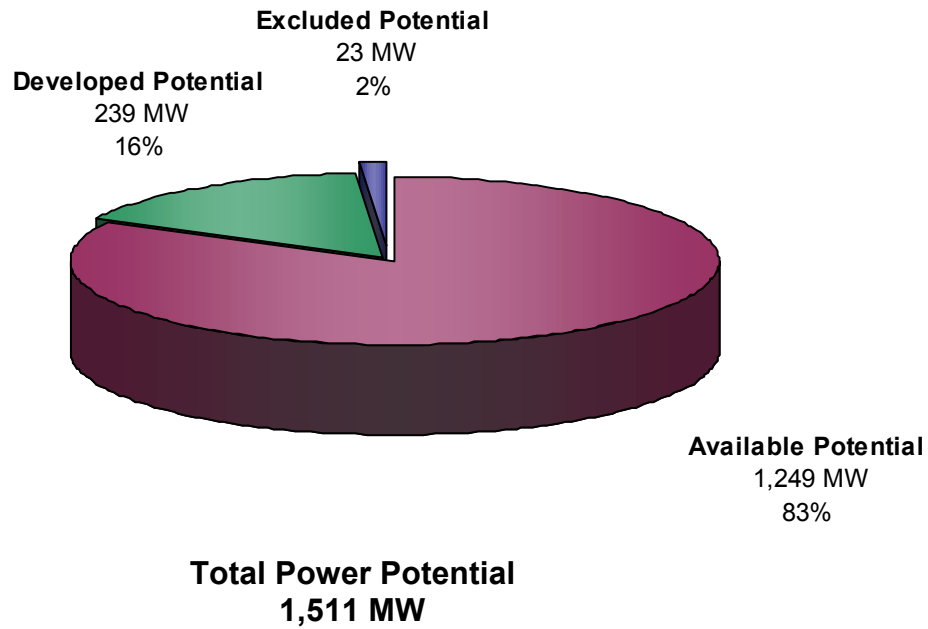| Annual Mean Power (MW)	Total	Developed	Excluded	Available[a]
TOTAL POWER	**1,511**	**239**	**23**	**1,249**
TOTAL HIGH POWER	**725**	**239**	**5**	**481**
High Head/High Power	323	239	1	83
Low Head/High Power	402	0	4	398
TOTAL LOW POWER	**786**	**0**	**18**	**768**
High Head/Low Power	120	0	6	114
Low Head/Low Power	666	0	12	654
Conventional Turbine	286	0	4	282
Unconventional Systems	157	0	5	152
Microhydro	223	0	3	220
a. No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.				

Excluded Potential
23 MW
2%

Developed Potential
239 MW
16%

Available Potential
1,249 MW
83%

Total Power Potential
1,511 MW

Figure B-177. Power category distribution of the total power potential (annual mean power) of water energy resources in Oklahoma.

High Power
481 MW
39%

High Head/Low Power
114 MW
9%

Low Head/Low Power
654 MW
52%

Total Available Potential
1,249 MW
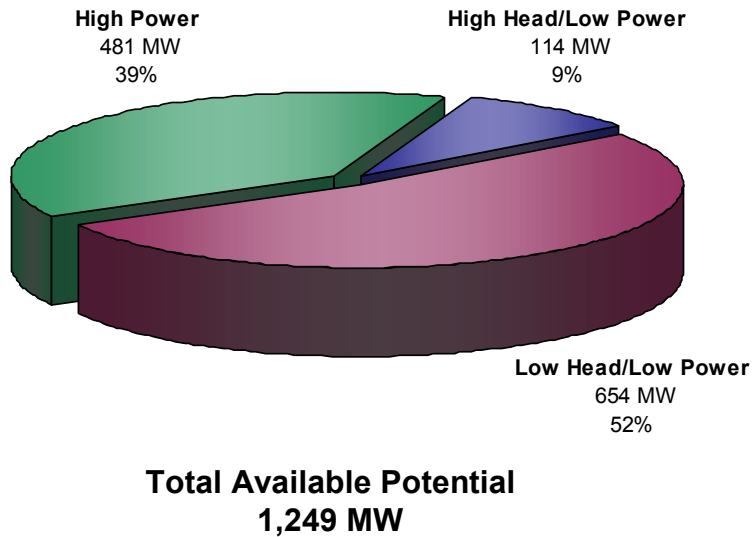
Figure B-178. Power class distribution of the available power potential (annual mean power) of water energy resources in Oklahoma.

Microhydro Total
223 MW
Microhydro Developed
& Excluded
3 MW

Microhydro Available
220 MW
(34% of total available)

Conventional
Turbines Total
286 MW
Conventional
Turbines Available
282 MW
(43% of total available)

Conventional Turbines
Developed and Excluded
4 MW

Unconventional
Systems Total
157 MW
Unconventional
Systems Developed & Excluded
5 MW

Unconventional Systems Available
152 MW
(23% of total available)

Low Head/Low Power Totals
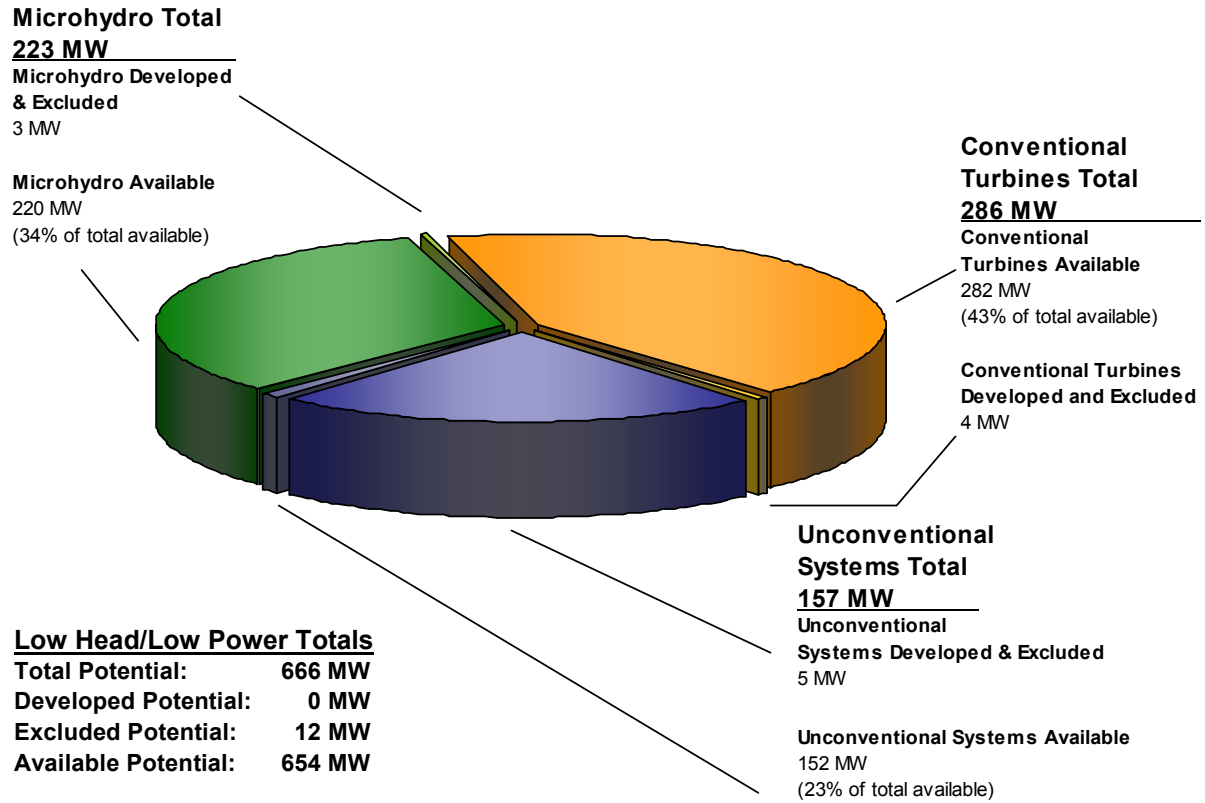|	
Total Potential:	666 MW
Developed Potential:	0 MW
Excluded Potential:	12 MW
Available Potential:	654 MW

Figure B-179. Distribution of the low head/low power power potential (annual mean power) of water energy resources in Oklahoma among three low head/low power hydropower technology classes.
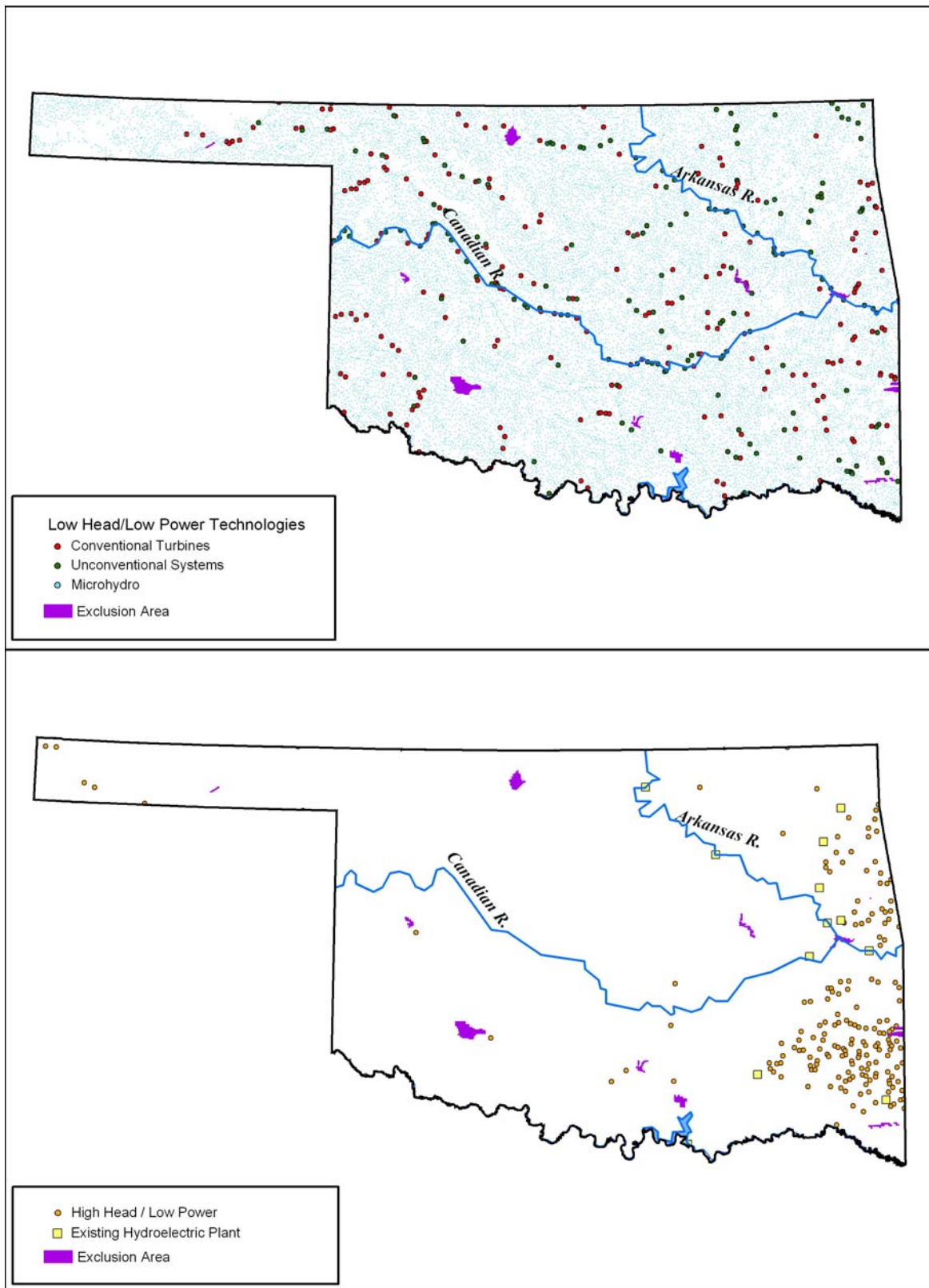
Oklahoma

Figure B-180. Low head/low power and high head/low power water energy sites, and existing hydroelectric plants in Oklahoma.
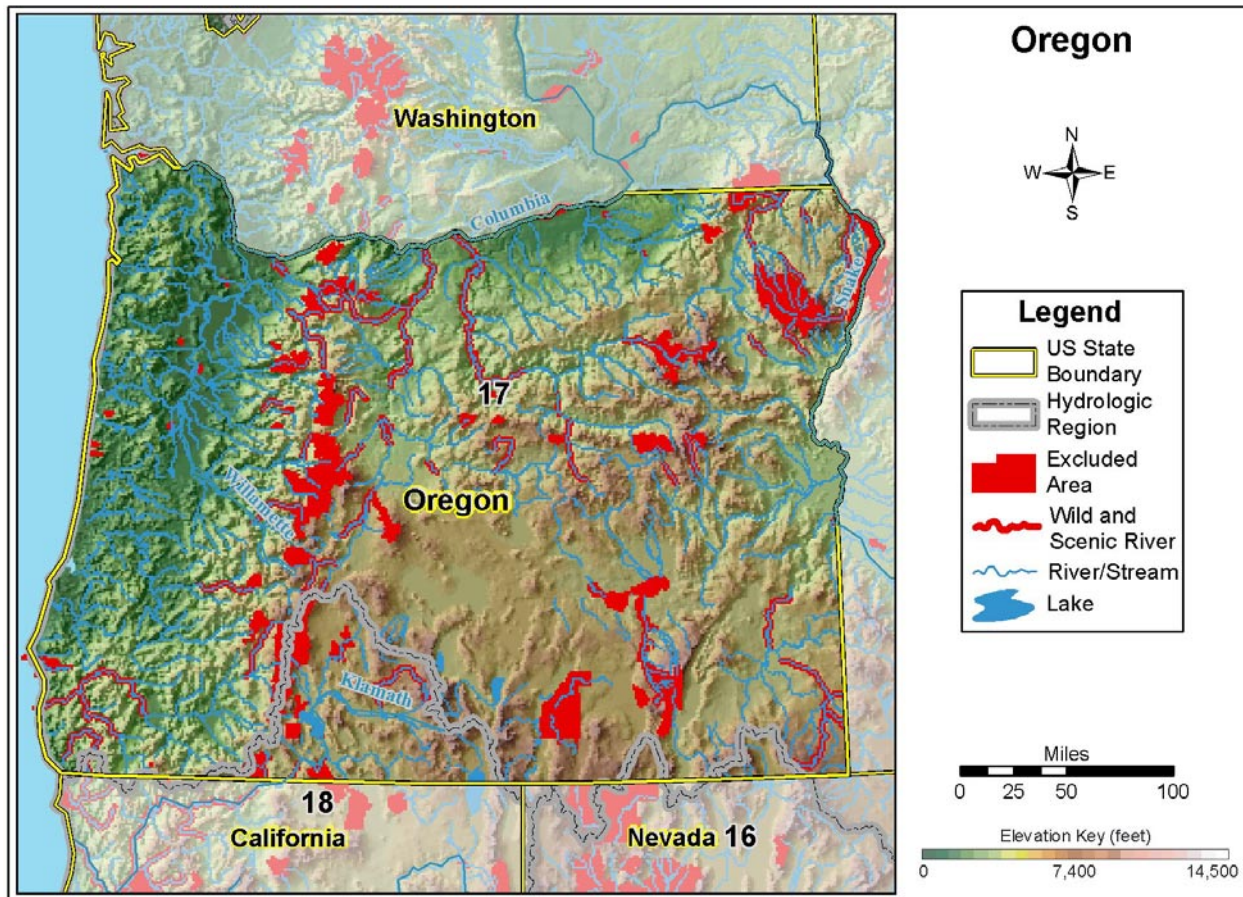
B.37 Oregon

Figure B-181. Oregon.

Table B-37. Summary of results of hydropower resource assessment of Oregon.

| Annual Mean Power (MW)	Total	Developed	Excluded	Available[a]
TOTAL POWER	**18,397**	**3,271**	**5,835**	**9,291**
TOTAL HIGH POWER	**15,341**	**3,258**	**5,392**	**6,691**
High Head/High Power	12,862	3,258	4,378	5,226
Low Head/High Power	2,479	0	1,014	1,465
TOTAL LOW POWER	**3,056**	**13**	**443**	**2,600**
High Head/Low Power	2,307	11	365	1,931
Low Head/Low Power	749	2	78	669
Conventional Turbine	259	1	29	229
Unconventional Systems	111	0	22	89
Microhydro	379	1	27	351
a. No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.				
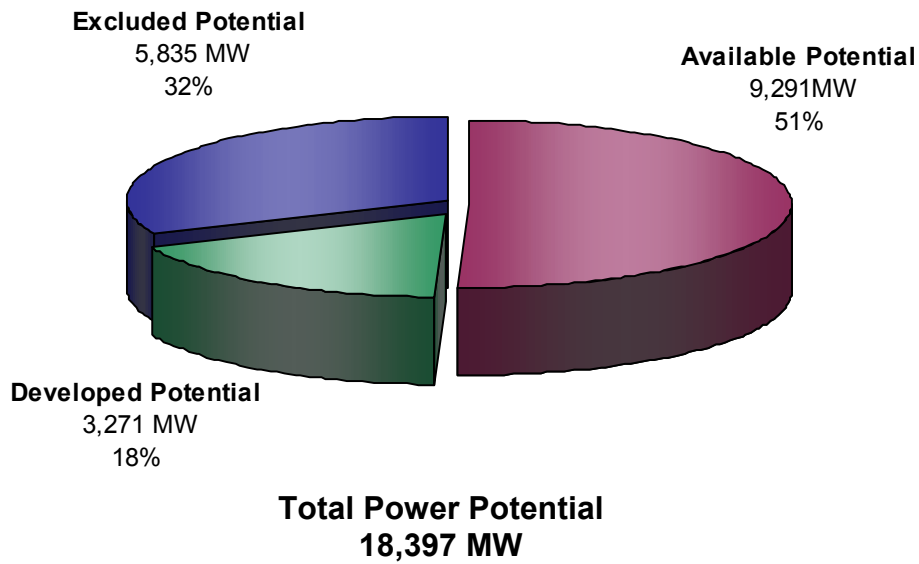
Figure B-182. Power category distribution of the total power potential (annual mean power) of water energy resources in Oregon.
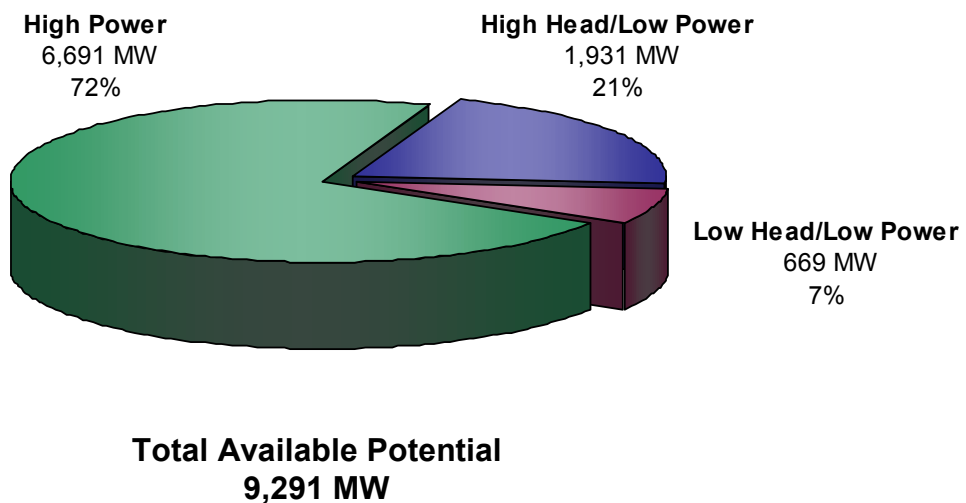

Figure B-183. Power class distribution of the available power potential (annual mean power) of water energy resources in Oregon.

**Microhydro Total
379 MW**

**Microhydro Developed
& Excluded**
28 MW

Microhydro Available
351 MW
(52% of total available)

**Conventional
Turbines Total
259 MW**

**Conventional
Turbines Available**
229 MW
(34% of total available)

**Conventional Turbines
Developed and Excluded**
30 MW

**Unconventional
Systems Total
111 MW**

Unconventional Systems Available
89 MW
(13% of total available)

**Unconventional
Systems Developed & Excluded**
22 MW

Low Head/Low Power Totals

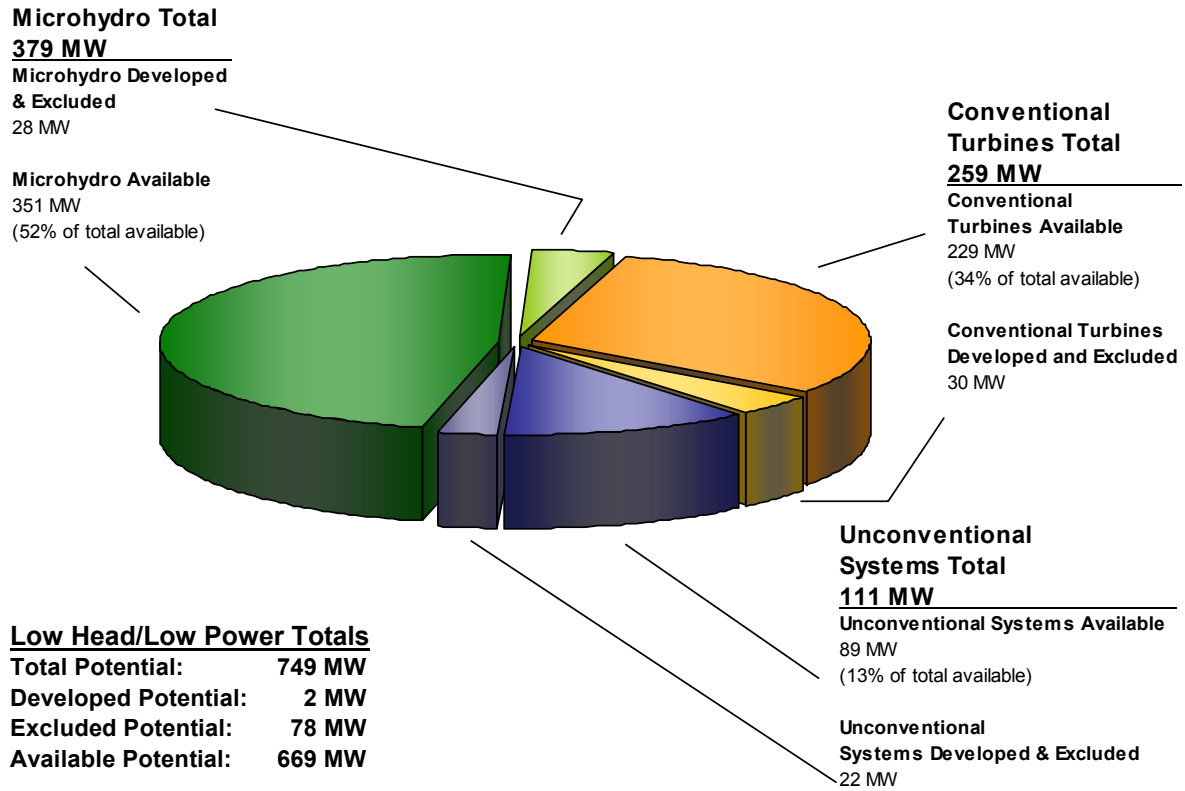|	
Total Potential:	**749 MW**
Developed Potential:	**2 MW**
Excluded Potential:	**78 MW**
Available Potential:	**669 MW**

Figure B-184. Distribution of the low head/low power power potential (annual mean power) of water energy resources in Oregon among three low head/low power hydropower technology classes.
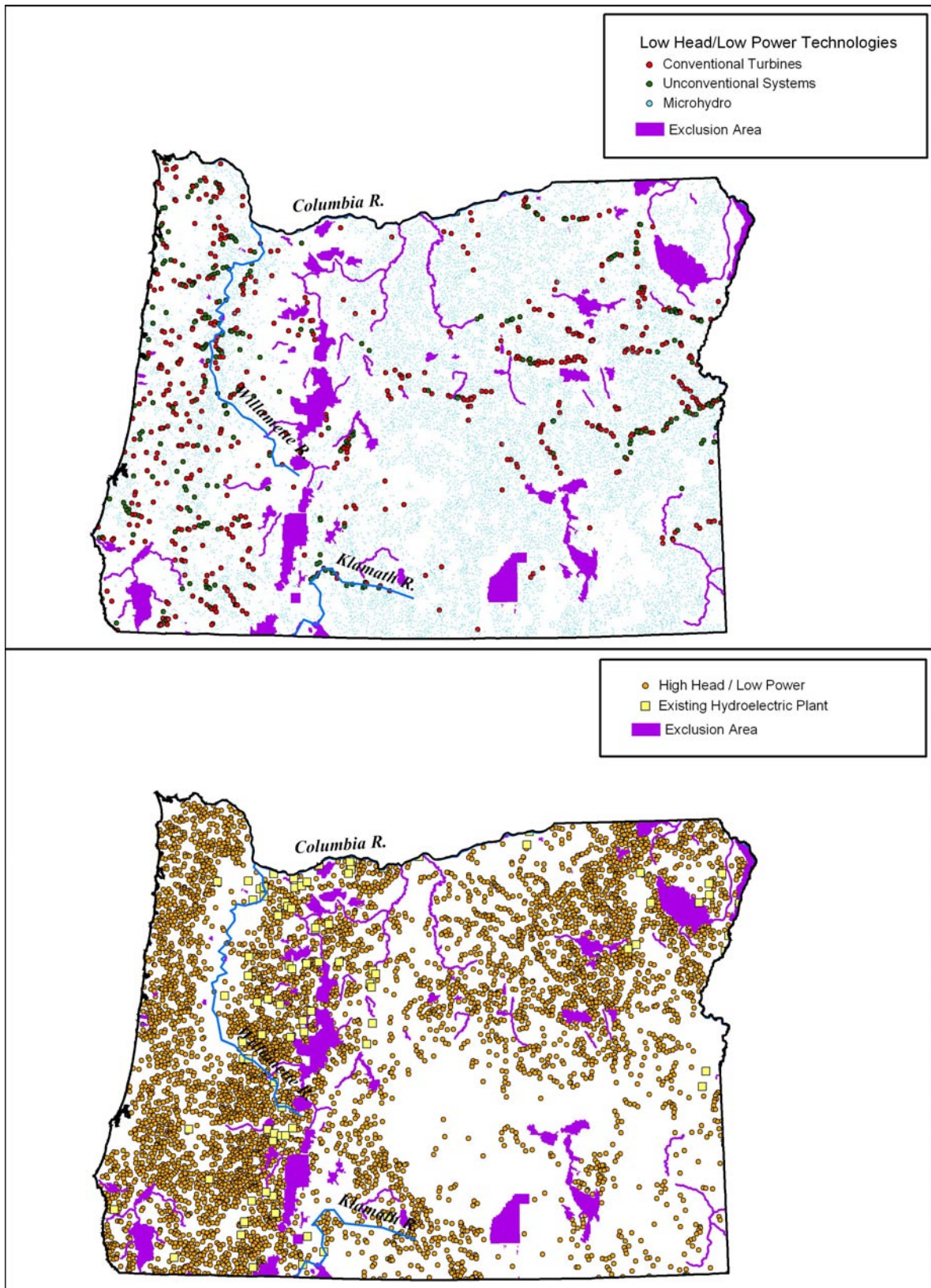
Figure B-185. Low head/low power and high head/low power water energy sites, and existing hydroelectric plants in Oregon.
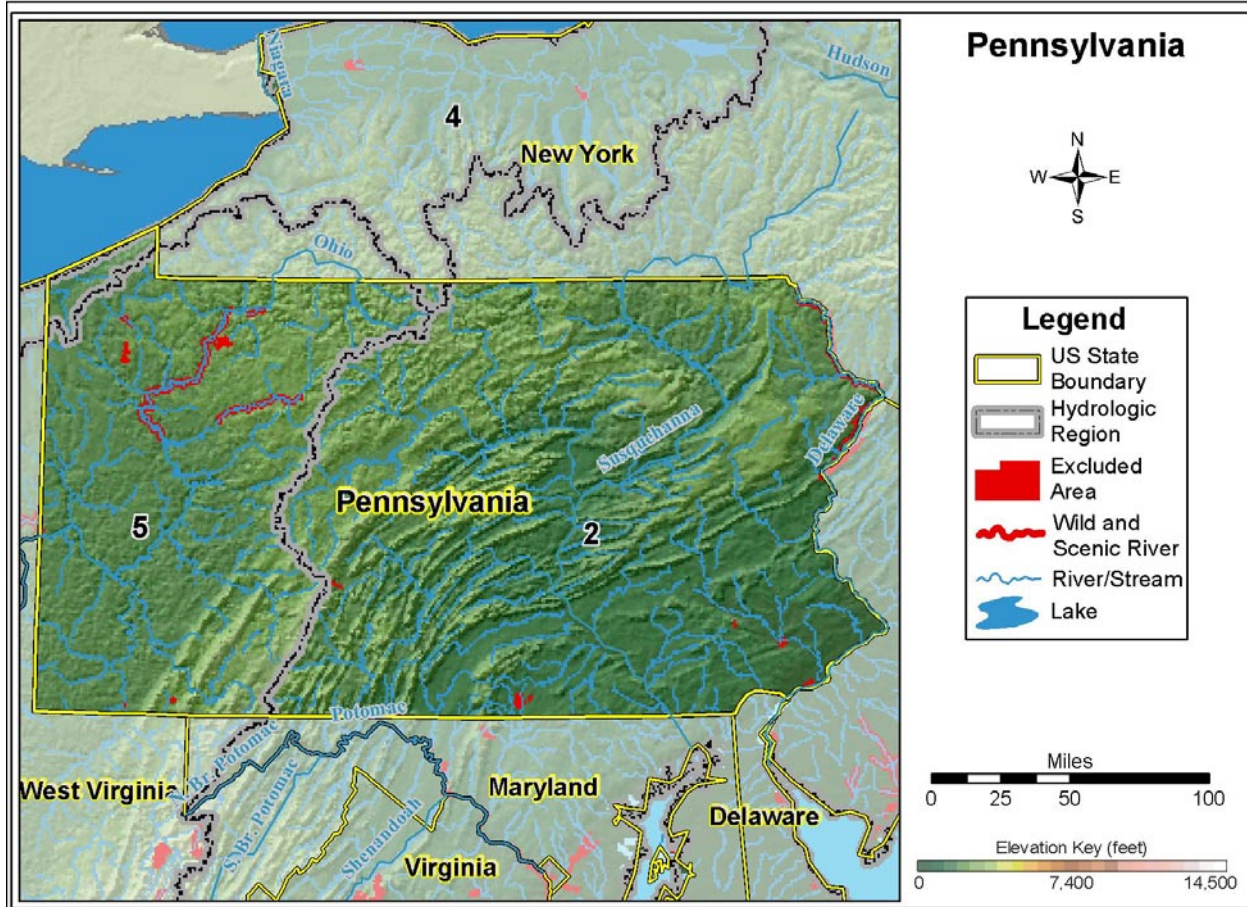
B.38 Pennsylvania

B.38 Pennsylvania

Figure B-186. Pennsylvania.

Table B-38. Summary of results of hydropower resource assessment of Pennsylvania.

Annual Mean Power (MW)	Total	Developed	Excluded	Available[a]
TOTAL POWER	**4,754**	**284**	**488**	**3,982**
TOTAL HIGH POWER	**3,265**	**282**	**448**	**2,535**
High Head/High Power	1,570	233	182	1,155
Low Head/High Power	1,695	49	266	1,380
TOTAL LOW POWER	**1,489**	**2**	**40**	**1,447**
High Head/Low Power	980	1	30	949
Low Head/Low Power	509	1	10	498
Conventional Turbine	190	1	4	185
Unconventional Systems	59	0	3	56
Microhydro	260	0	3	257
a. No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.				

Excluded Potential
488 MW
10%

Developed Potential
284 MW
6%

Available Potential
3,982 MW
84%

Total Power Potential
4,754 MW

Figure B-187. Power category distribution of the total power potential (annual mean power) of water energy resources in Pennsylvania.

High Power
2,535 MW
64%

High Head/Low Power
949 MW
24%

Low Head/Low Power
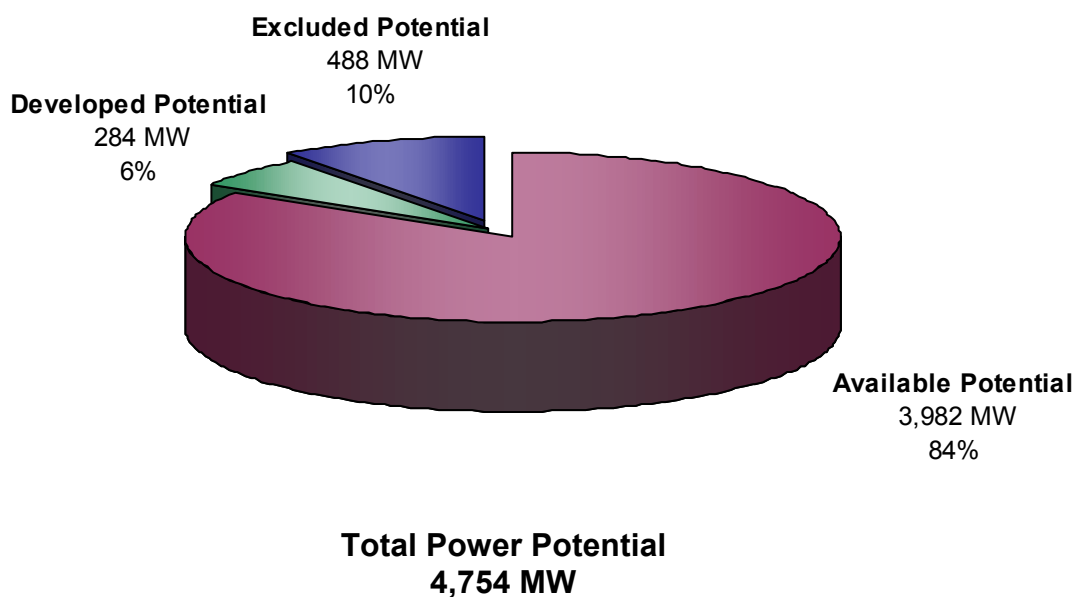498 MW
13%

Total Available Potential
3,982 MW
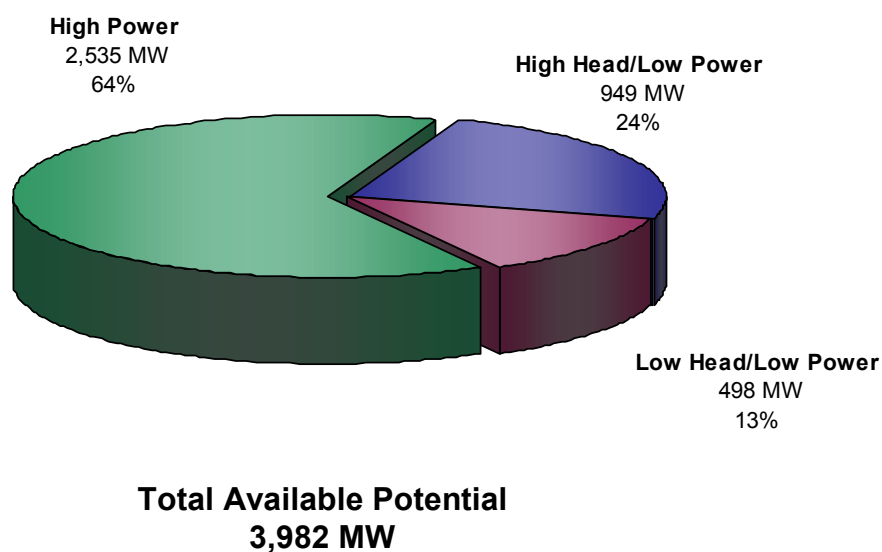
Figure B-188. Power class distribution of the available power potential (annual mean power) of water energy resources in Pennsylvania.

Microhydro Total
260 MW

Microhydro Developed
& Excluded
3 MW

Microhydro Available
257 MW
(52% of total available)

Conventional
Turbines Total
190 MW

Conventional
Turbines Available
185 MW
(37% of total available)

Conventional Turbines
Developed and Excluded
5 MW

Unconventional
Systems Total
59 MW

Unconventional Systems Available
56 MW
(11% of total available)

Unconventional
Systems Developed & Excluded
3 MW

Low Head/Low Power Totals

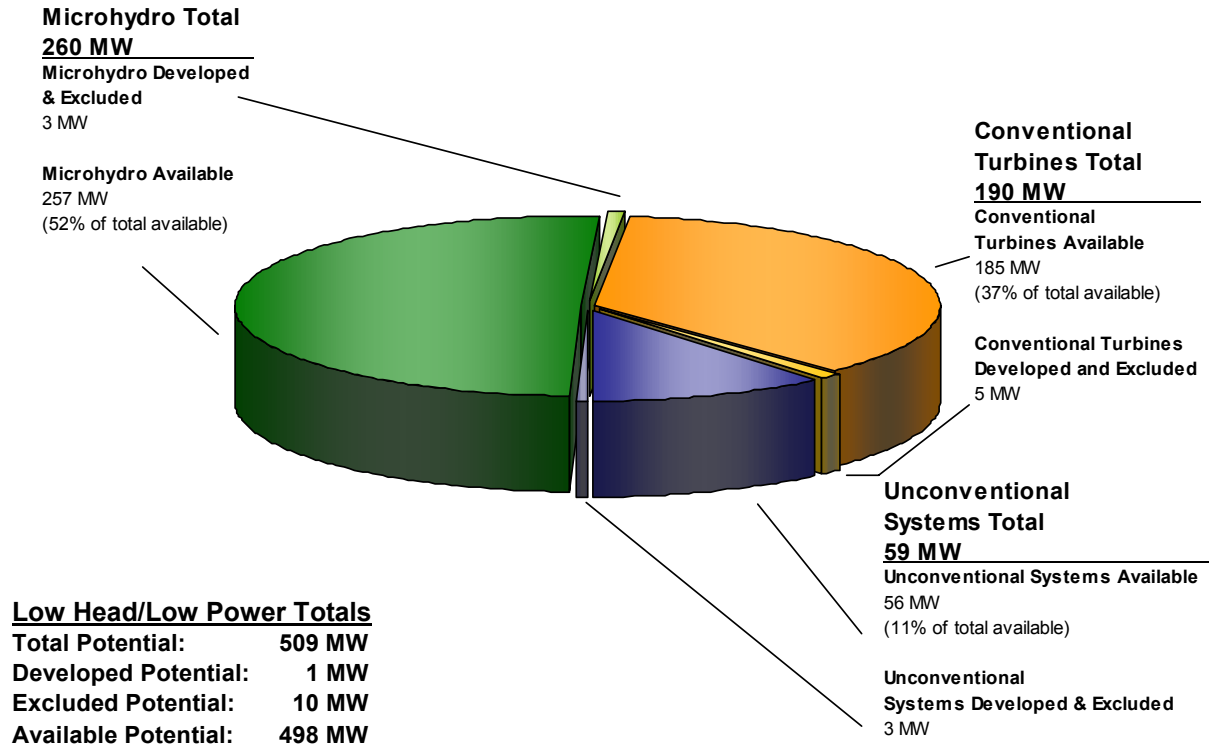|	
Total Potential:	**509 MW**
Developed Potential:	**1 MW**
Excluded Potential:	**10 MW**
Available Potential:	**498 MW**

Figure B-189. Distribution of the low head/low power power potential (annual mean power) of water energy resources in Pennsylvania among three low head/low power hydropower technology classes.
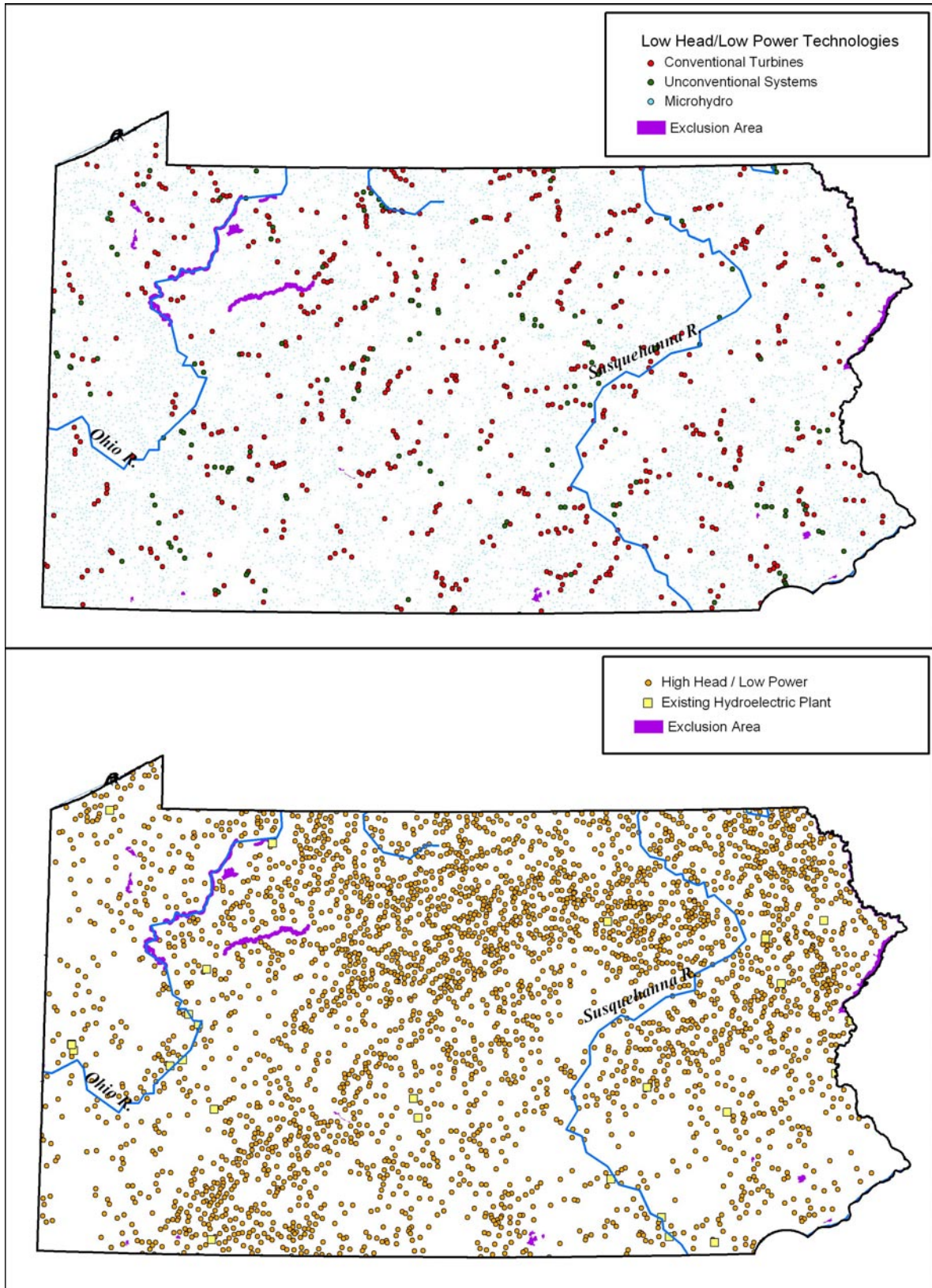
Figure B-190. Low head/low power and high head/low power water energy sites, and existing hydroelectric plants in Pennsylvania.
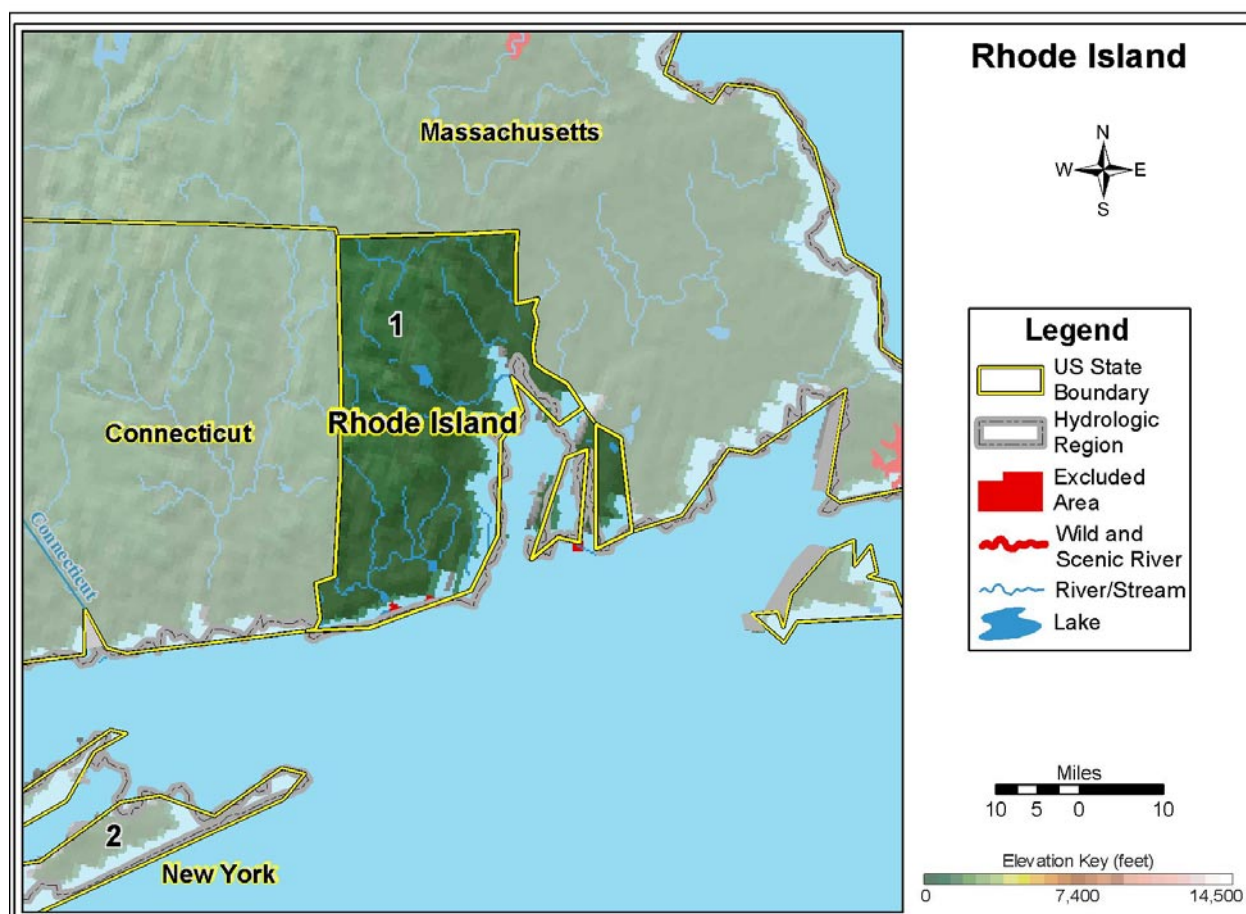
B.39 Rhode Island

Figure B-191. Rhode Island.

Table B-39. Summary of results of hydropower resource assessment of Rhode Island.

Annual Mean Power (MW)	Total	Developed	Excluded	Available[a]
TOTAL POWER	37	4	0	33
TOTAL HIGH POWER	16	1	0	15
High Head/High Power	14	1	0	13
Low Head/High Power	2	0	0	2
TOTAL LOW POWER	21	3	0	18
High Head/Low Power	9	0	0	9
Low Head/Low Power	12	3	0	9
Conventional Turbine	5	3	0	2
Unconventional Systems	1	0	0	1
Microhydro	6	0	0	6
a. No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.				

Developed Potential
4 MW
11%

Excluded Potential
0 MW
0 %

Available Potential
33 MW
89%

**Total Power Potential
37 MW**

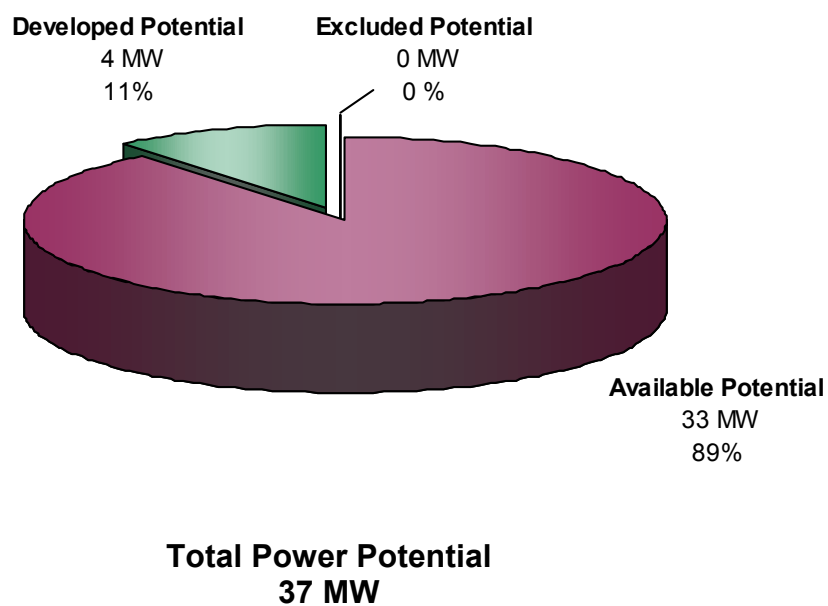Figure B-192. Power category distribution of the total power potential (annual mean power) of water energy resources in Rhode Island.

High Power
15 MW
45%

High Head/Low Power
9 MW
27%

Low Head/Low Power
9 MW
27%

**Total Available Potential
33 MW**
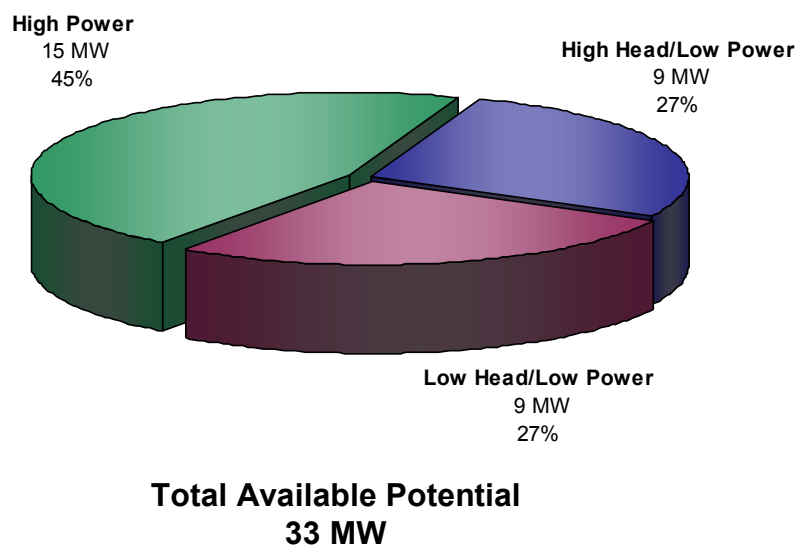
Figure B-193. Power class distribution of the available power potential (annual mean power) of water energy resources in Rhode Island.

Microhydro Total
6 MW
Microhydro Developed
& Excluded
0 MW

Microhydro Available
6 MW
(67% of total available)

Conventional
Turbines Total
5 MW
Conventional
Turbines Available
2 MW
(22% of total available)

Conventional Turbines
Developed and Excluded
3 MW

Unconventional
Systems Total
1 MW
Unconventional Systems Available
1 MW
(11% of total available)

Unconventional
Systems Developed & Excluded
0 MW

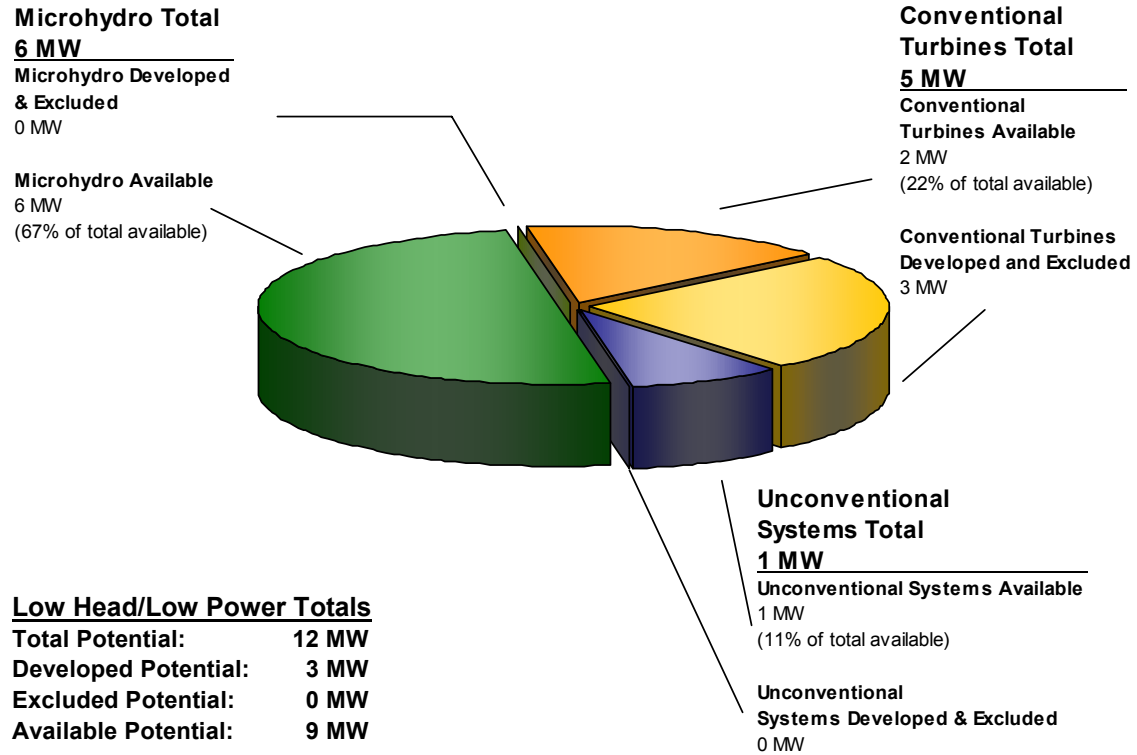| Low Head/Low Power Totals	
Total Potential:	**12 MW**
Developed Potential:	**3 MW**
Excluded Potential:	**0 MW**
Available Potential:	**9 MW**

Figure B-194. Distribution of the low head/low power power potential (annual mean power) of water energy resources in Rhode Island among three low head/low power hydropower technology classes.
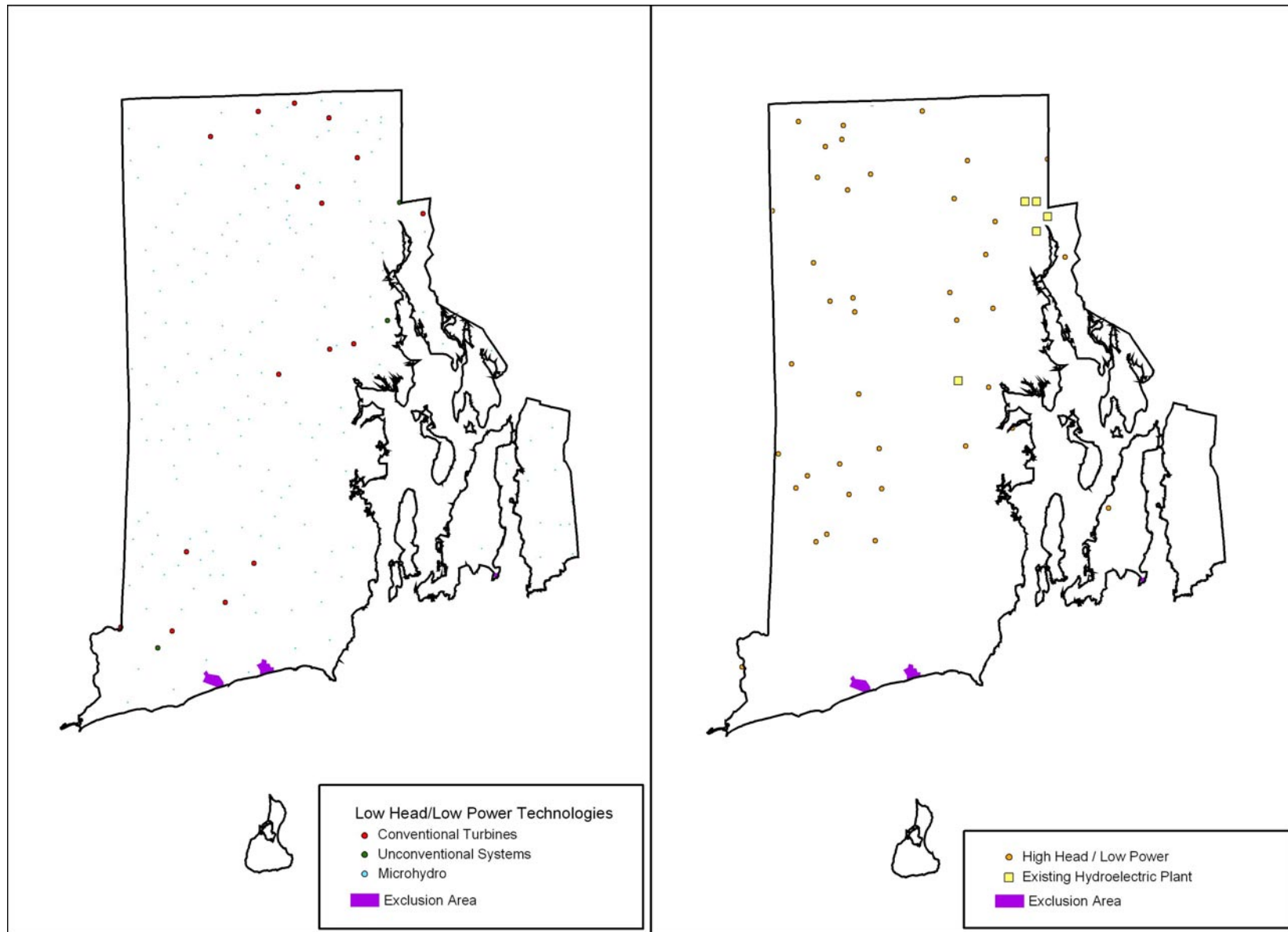
Figure B-195. Low head/low power and high head/low power water energy sites, and existing hydroelectric plants in Rhode Island.
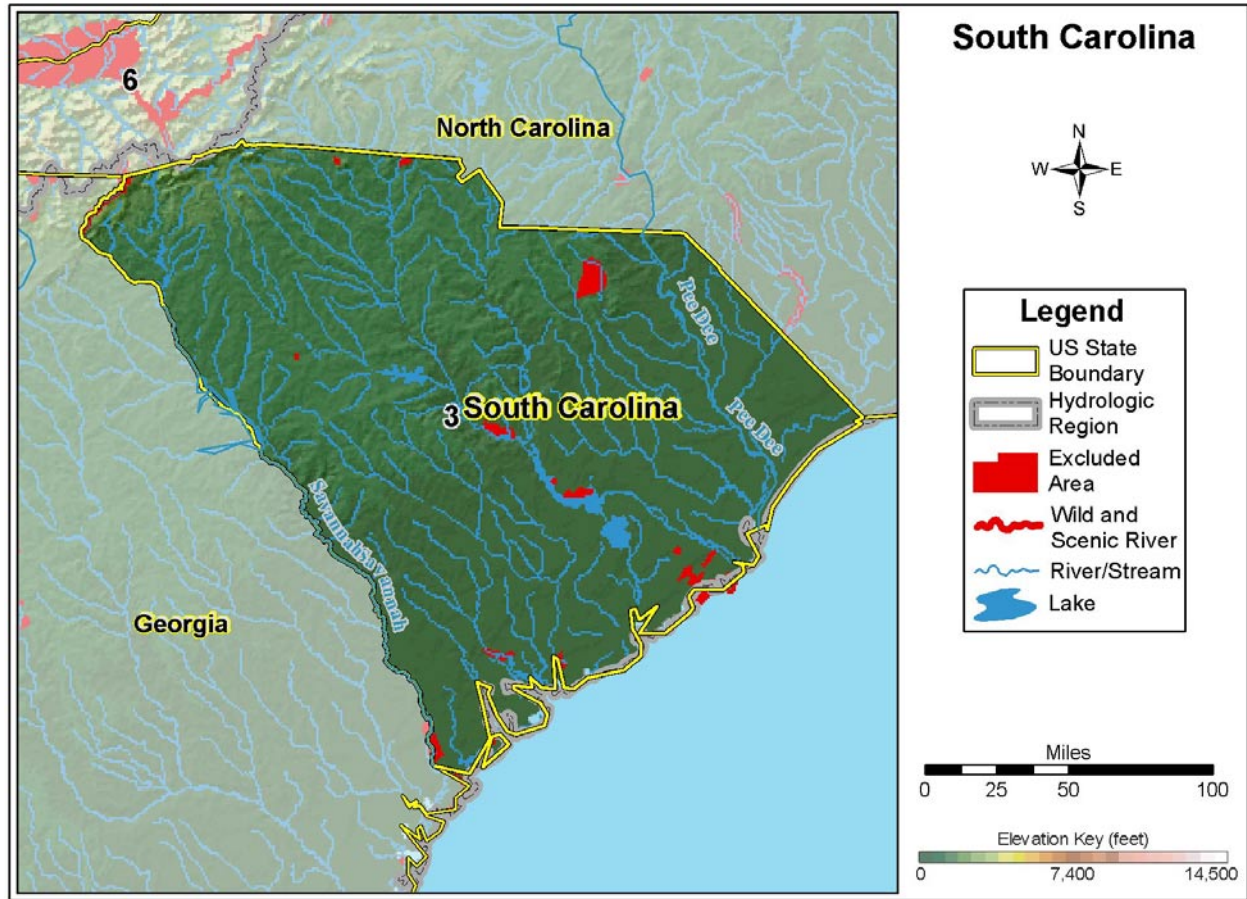
B.40 South Carolina

Figure B-196. South Carolina.

Table B-40. Summary of results of hydropower resource assessment of South Carolina.

| Annual Mean Power (MW)	Total	Developed	Excluded	Available[a]
TOTAL POWER	**1,325**	**428**	**49**	**848**
TOTAL HIGH POWER	**972**	**420**	**43**	**509**
High Head/High Power	487	415	28	44
Low Head/High Power	485	5	15	465
TOTAL LOW POWER	**353**	**8**	**6**	**339**
High Head/Low Power	86	5	3	78
Low Head/Low Power	267	3	3	261
Conventional Turbine	72	3	0	69
Unconventional Systems	81	0	2	79
Microhydro	114	0	1	113
a. No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.				

Excluded Potential
49 MW
4%

Developed Potential
428 MW
32%

Available Potential
848 MW
64%

Total Power Potential
1,325 MW
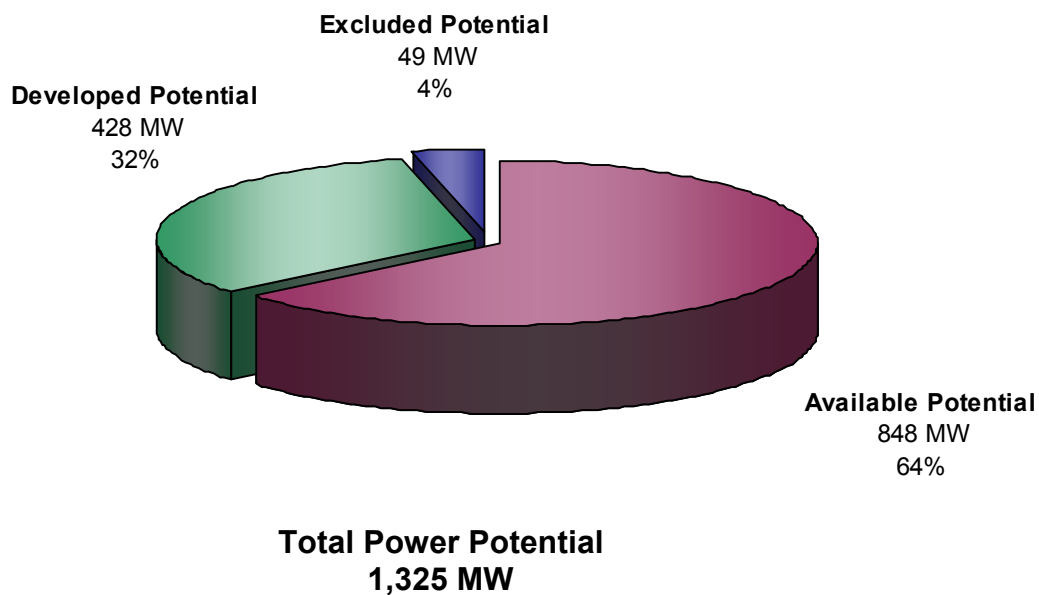
Figure B-197. Power category distribution of the total power potential (annual mean power) of water energy resources in South Carolina.

High Head/Low Power
78 MW
9%

High Power
509 MW
60%

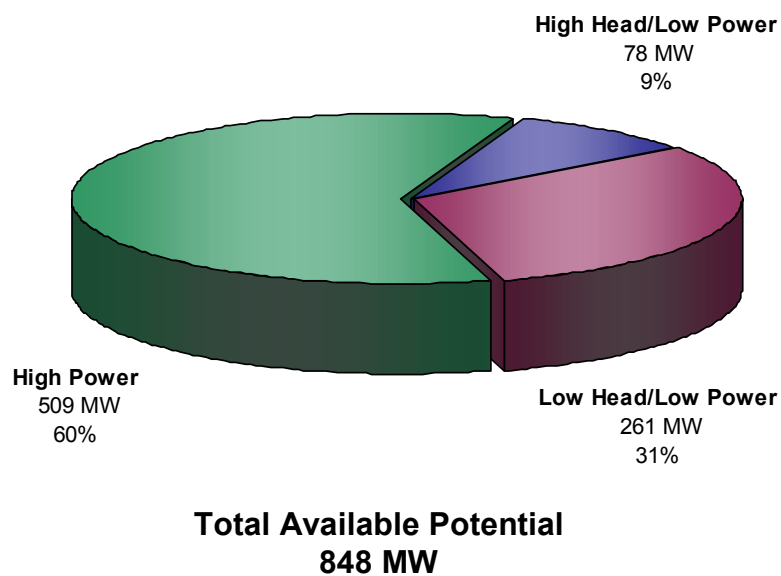**Low Head/Low Power**
261 MW
31%

Total Available Potential
848 MW

Figure B-198. Power class distribution of the available power potential (annual mean power) of water energy resources in South Carolina.

Microhydro Total
114 MW
Microhydro Developed
& Excluded
1 MW

Microhydro Available
113 MW
(43% of total available)

Conventional
Turbines Total
72 MW
Conventional
Turbines Available
69 MW
(26% of total available)

Conventional Turbines
Developed and Excluded
3 MW

Unconventional
Systems Total
81 MW
Unconventional Systems Available
79 MW
(30% of total available)

Unconventional
Systems Developed & Excluded
2 MW

Low Head/Low Power Totals

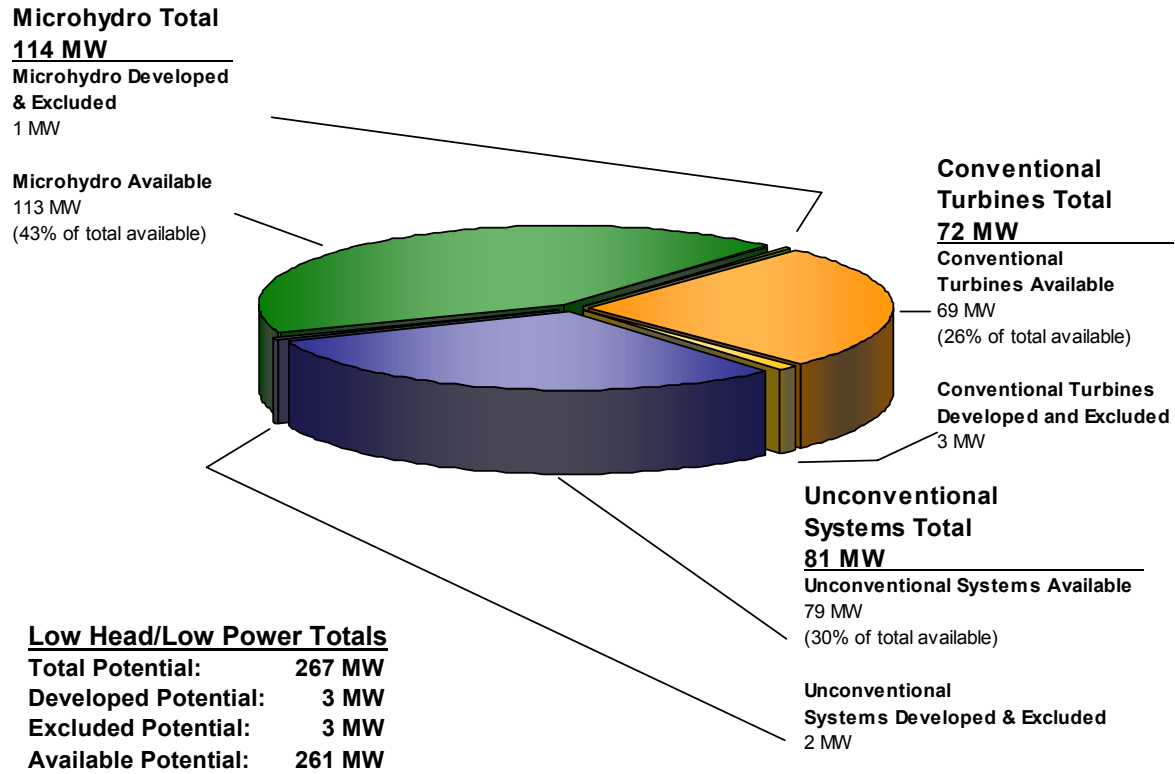|	
Total Potential:	**267 MW**
Developed Potential:	**3 MW**
Excluded Potential:	**3 MW**
Available Potential:	**261 MW**

Figure B-199. Distribution of the low head/low power power potential (annual mean power) of water energy resources in South Carolina among three low head/low power hydropower technology classes.
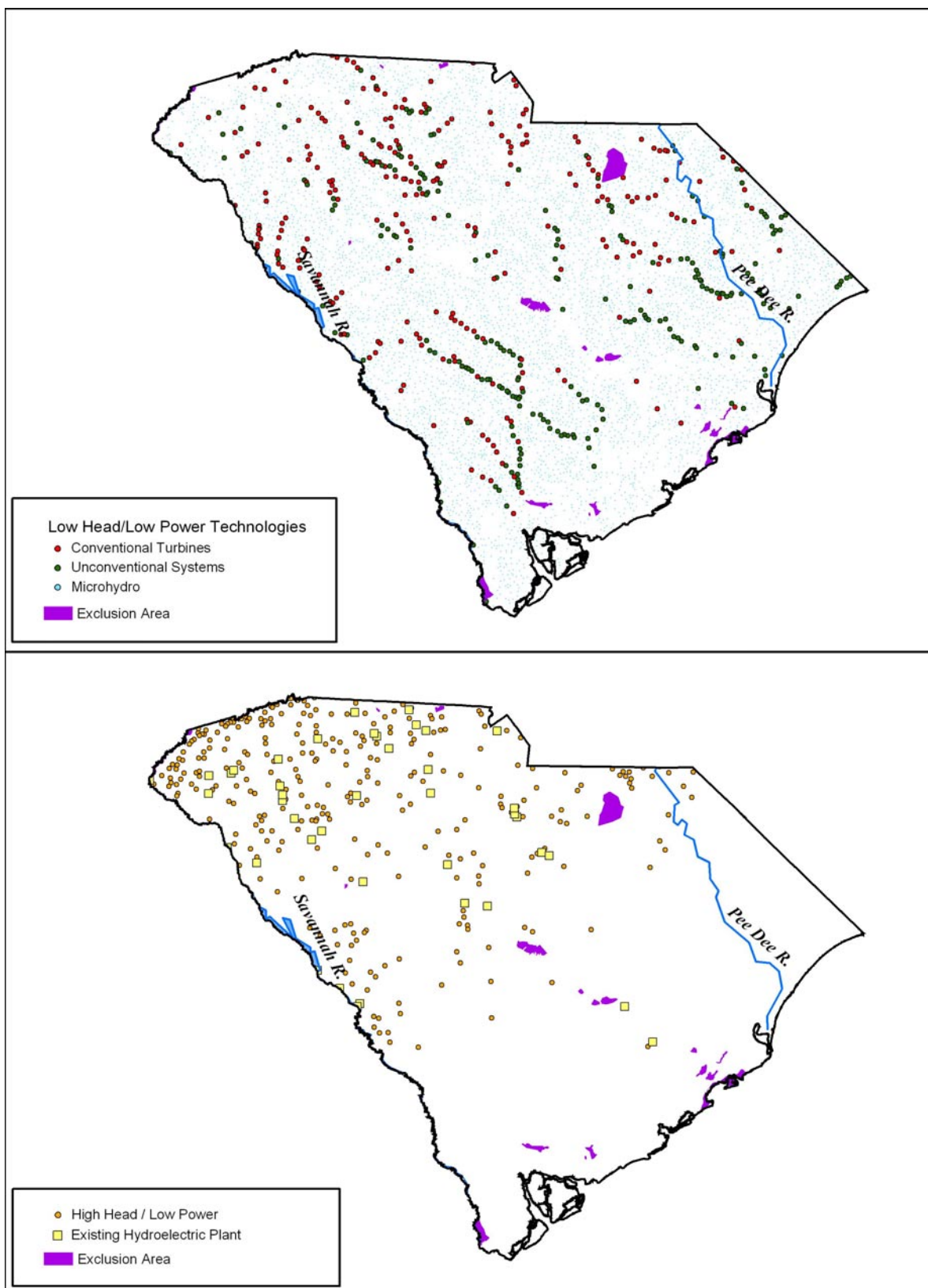
Figure B-200. Low head/low power and high head/low power water energy sites, and existing hydroelectric plants in South Carolina.
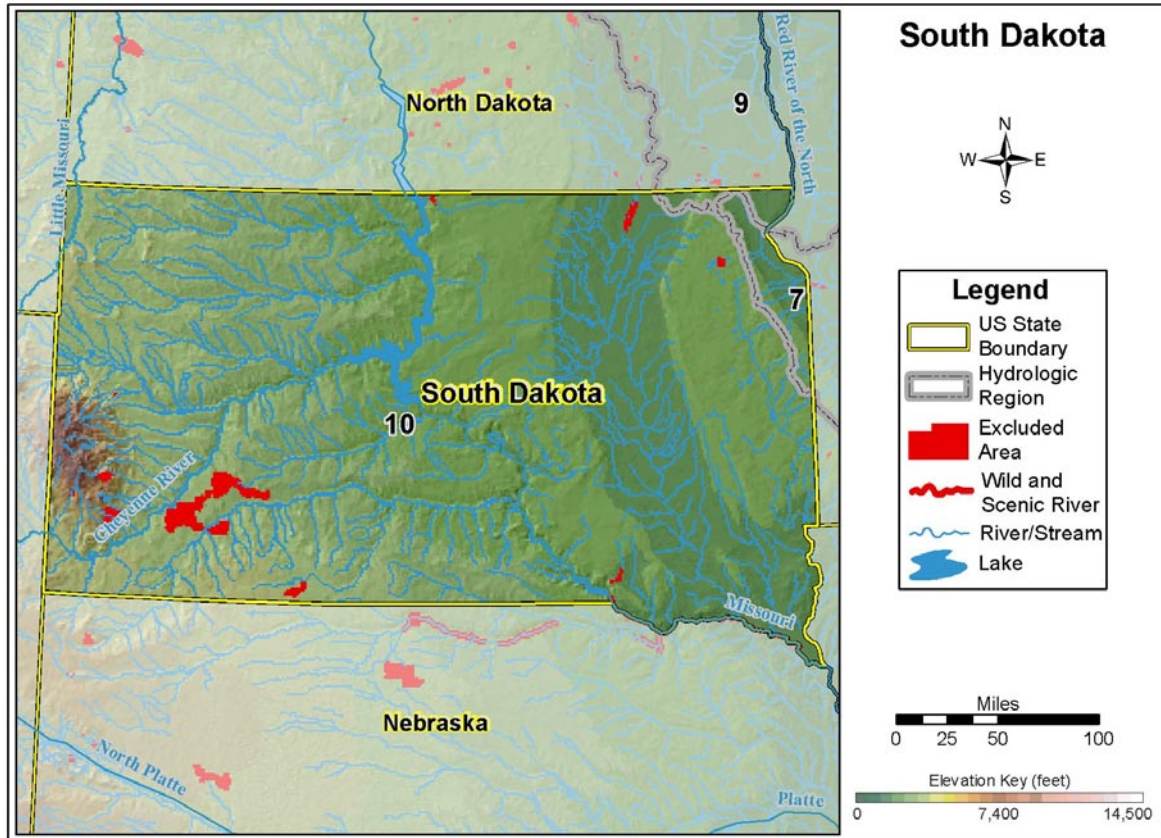
B.41 South Dakota

Figure B-201. South Dakota.

Table B-41. Summary of results of hydropower resource assessment of South Dakota.

Annual Mean Power (MW)	Total	Developed[a]	Excluded[a]	Available[a,b]
TOTAL POWER	**858**	**622**	**67**	**169**
TOTAL HIGH POWER	**423**	**365**	**58**	**0**
High Head/High Power	**323**	**323**	**0**	**0**
Low Head/High Power	**100**	**42**	**58**	**0**
TOTAL LOW POWER	**435**	**257**	**9**	**169**
High Head/Low Power	**105**	**102**	**3**	**0**
Low Head/Low Power	**330**	**155**	**6**	**169**
Conventional Turbine	120	117	3	0
Unconventional Systems	33	32	1	0
Microhydro	177	6	2	169

a. Developed high head/high power potential in exclusion zones exceeded the total amount of potential in exclusion zones in this power class by 90 MW probably because the developed power is made up of resources in other power classes. Assuming that all the excluded potential in this power class has been developed resulted in 299 MW of "excess" developed power in the high head/high power class. This "excess" developed power in the high head/high power class was rolled downward into successively lower power classes in this table to the extent that each lower power class could accommodate additional developed power without creating a negative available potential

b. No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.
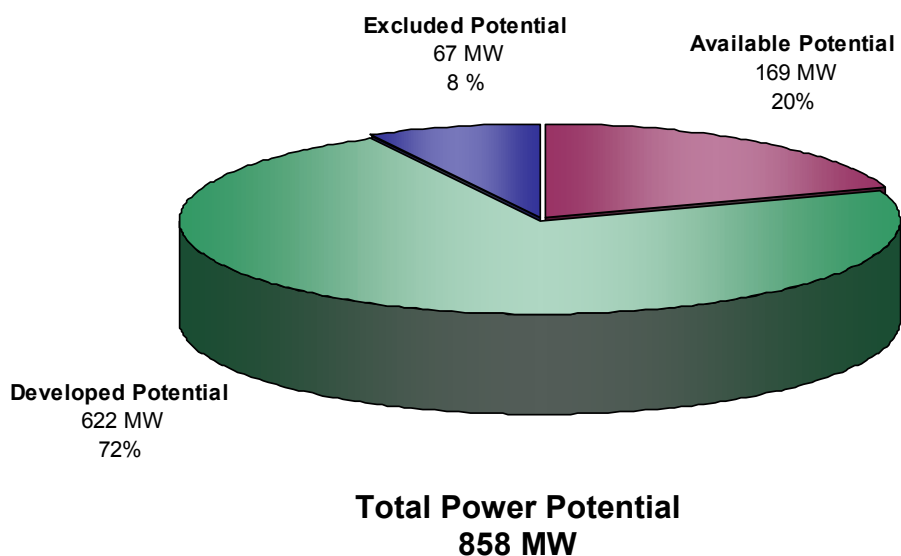
Excluded Potential
67 MW
8 %

Available Potential
169 MW
20%

Developed Potential
622 MW
72%

**Total Power Potential
858 MW**

Figure B-202. Power category distribution of the total power potential (annual mean power) of water energy resources in South Dakota.

High Power
0 MW
0%

High Head/Low Power
0 MW
0%

Low Head/Low Power
169 MW
100%

**Total Available Potential
169 MW**
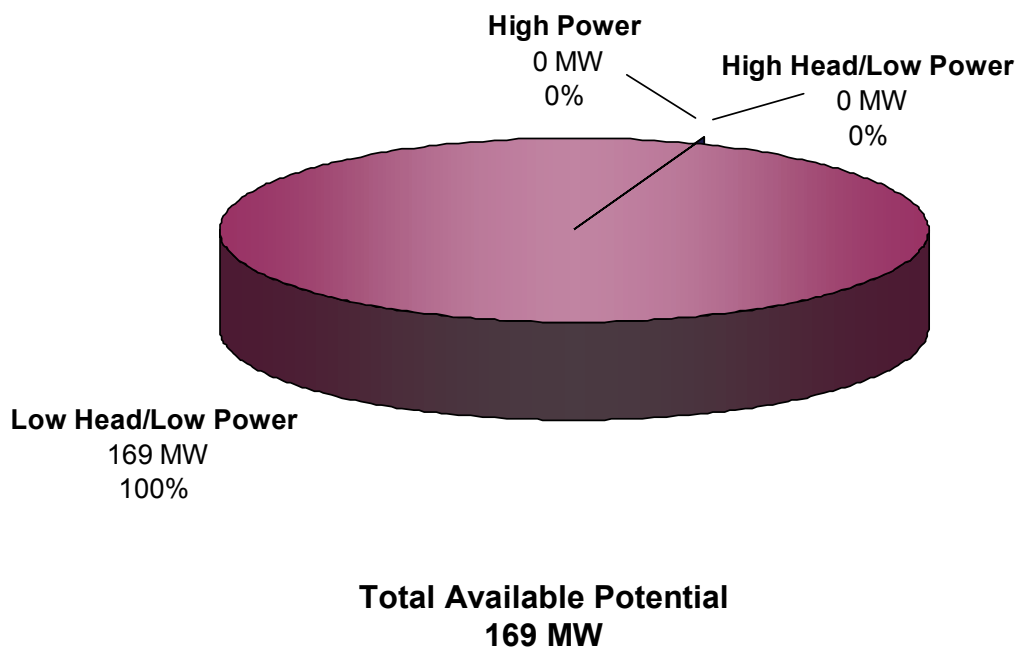
Figure B-203. Power class distribution of the available power potential (annual mean power) of water energy resources in South Dakota.

Microhydro Total
177 MW
Microhydro Developed
& Excluded
8 MW

Microhydro Available
169 MW
(100% of total available)

Conventional
Turbines Total
120 MW
Conventional
Turbines Available
0 MW
(0% of total available)

Conventional Turbines
Developed and Excluded
120 MW

Unconventional
Systems Total
33 MW
Unconventional Systems Available
0 MW
(0% of total available)

Unconventional
Systems Developed & Excluded
33 MW

Low Head/Low Power Totals

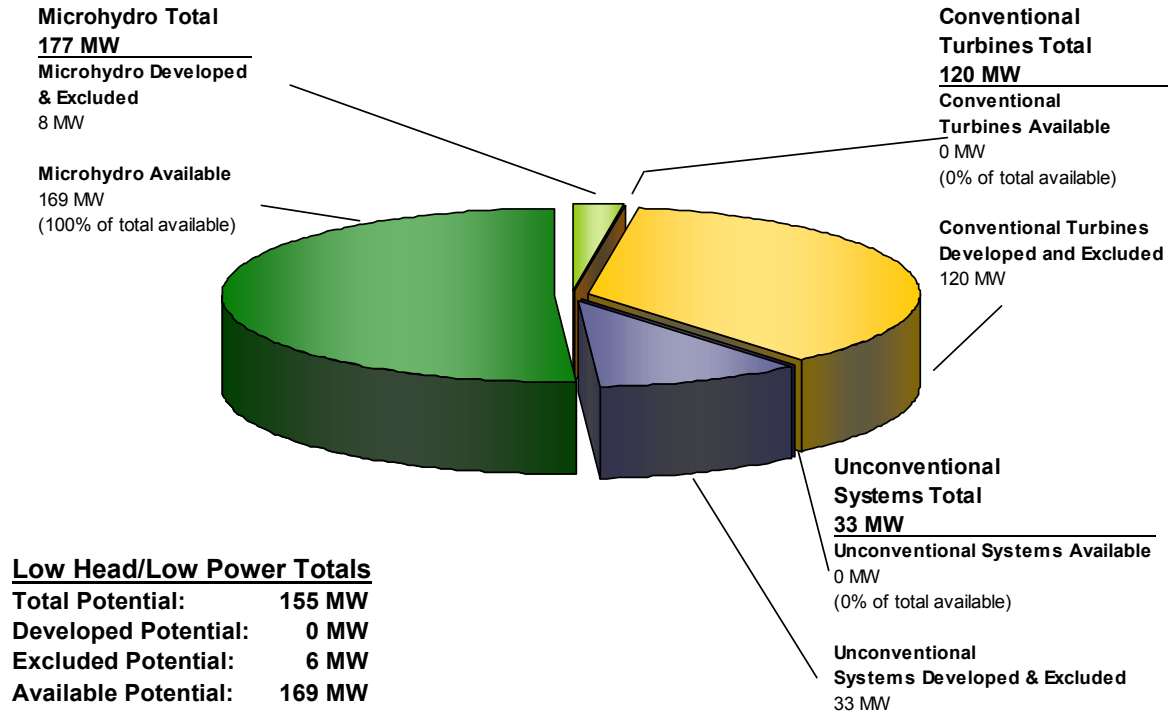|	
Total Potential:	**155 MW**
Developed Potential:	**0 MW**
Excluded Potential:	**6 MW**
Available Potential:	**169 MW**

Figure B-204. Distribution of the low head/low power power potential (annual mean power) of water energy resources in South Dakota among three low head/low power hydropower technology classes.
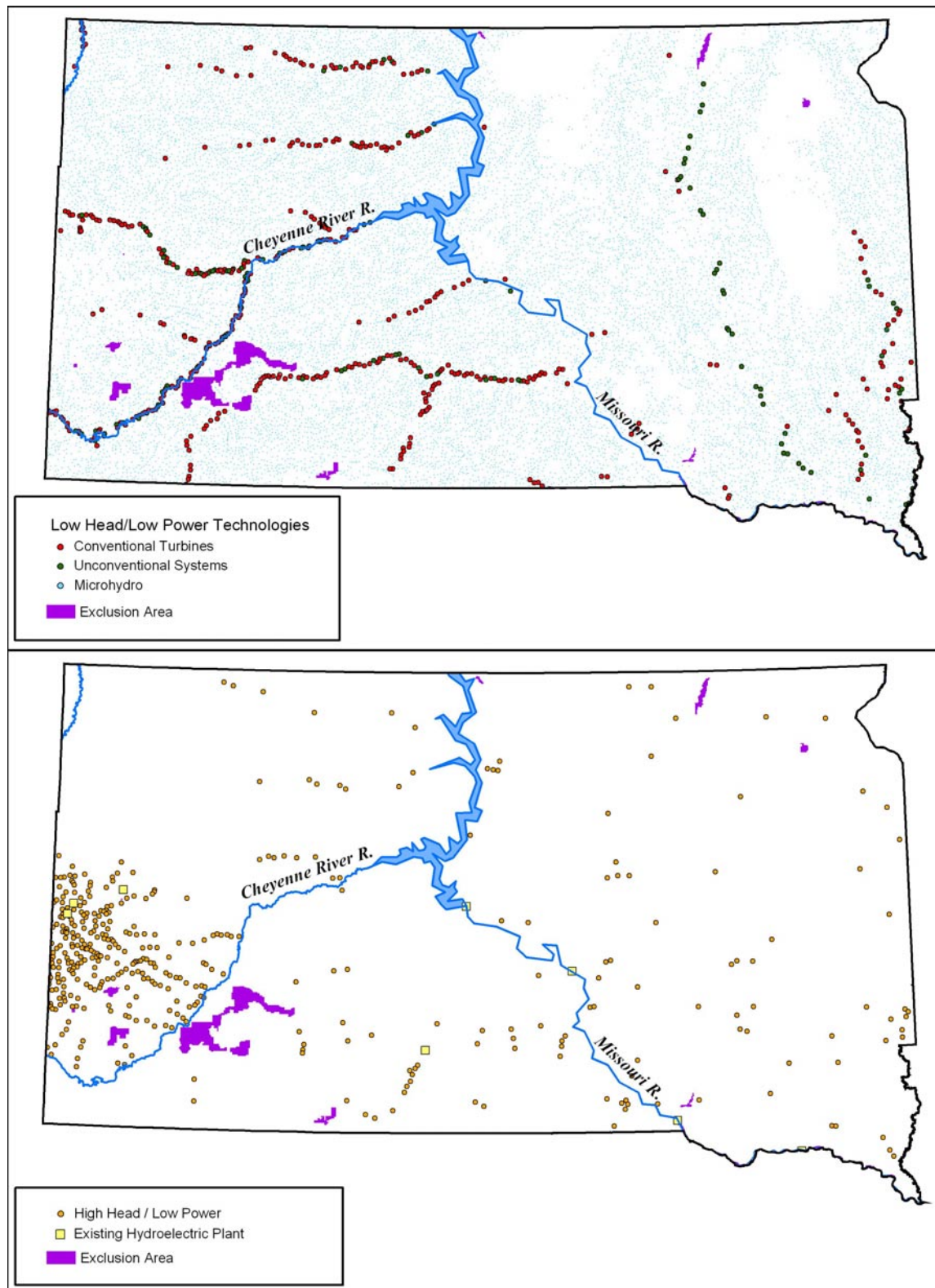
Figure B-205. Low head/low power and high head/low power water energy sites, and existing hydroelectric plants in South Dakota. (Note: Water energy sites shown in this figure are probably sites of power potential even though redistribution of "excess" developed power resulted in no available low power potential except in the microhydro technology class.)
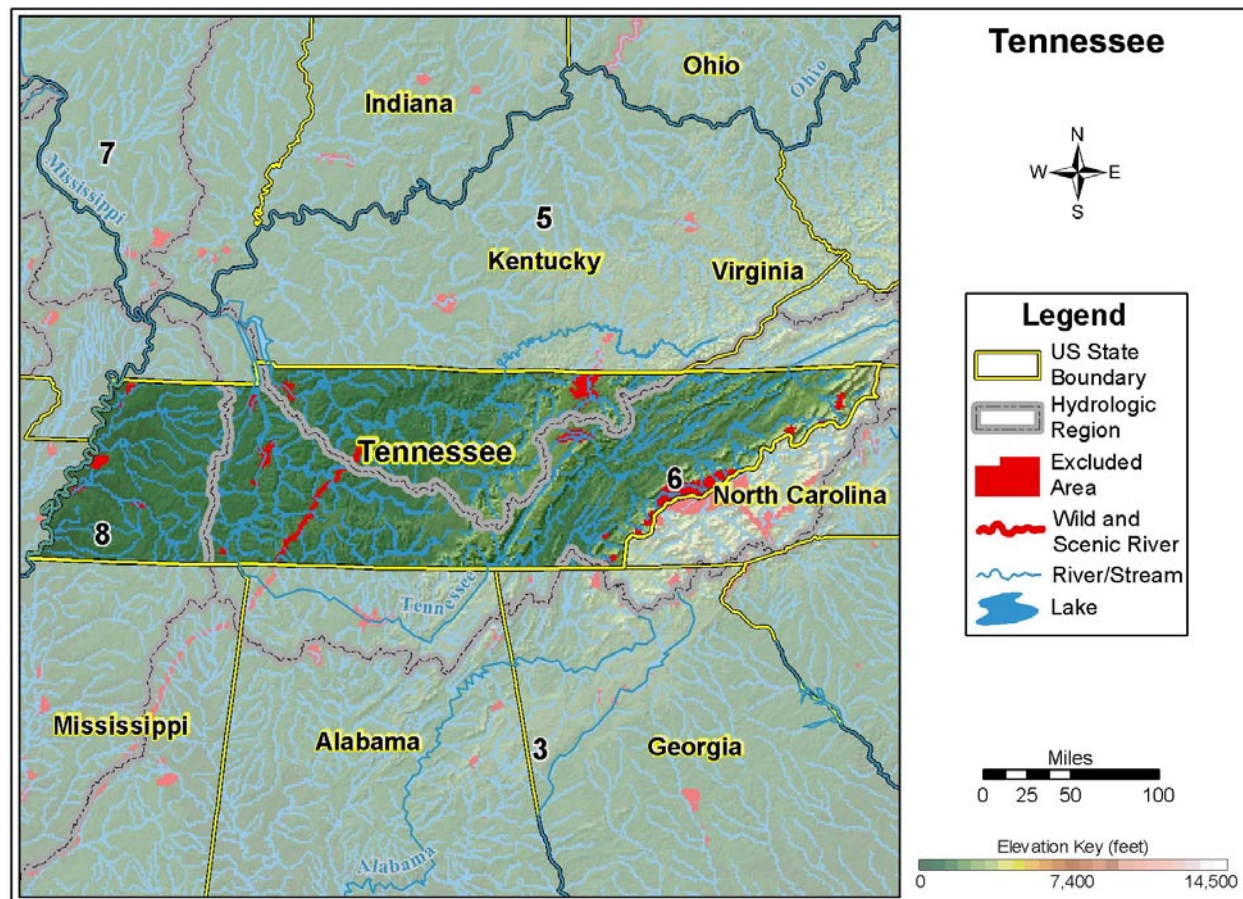
B.42 Tennessee

Figure B-206. Tennessee.

Table B-42. Summary of results of hydropower resource assessment of Tennessee.

Annual Mean Power (MW)	Total	Developed	Excluded	Available[a]
TOTAL POWER	**5,284**	**1,082**	**472**	**3,730**
TOTAL HIGH POWER	**4,368**	**1,082**	**386**	**2,900**
High Head/High Power	**1,606**	**1,061**	**278**	**267**
Low Head/High Power	**2,762**	**21**	**108**	**2,633**
TOTAL LOW POWER	**916**	**0**	**86**	**830**
High Head/Low Power	**463**	**0**	**66**	**397**
Low Head/Low Power	**453**	**0**	**20**	**433**
Conventional Turbine	151	0	6	145
Unconventional Systems	84	0	6	78
Microhydro	218	0	8	210

a. No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.
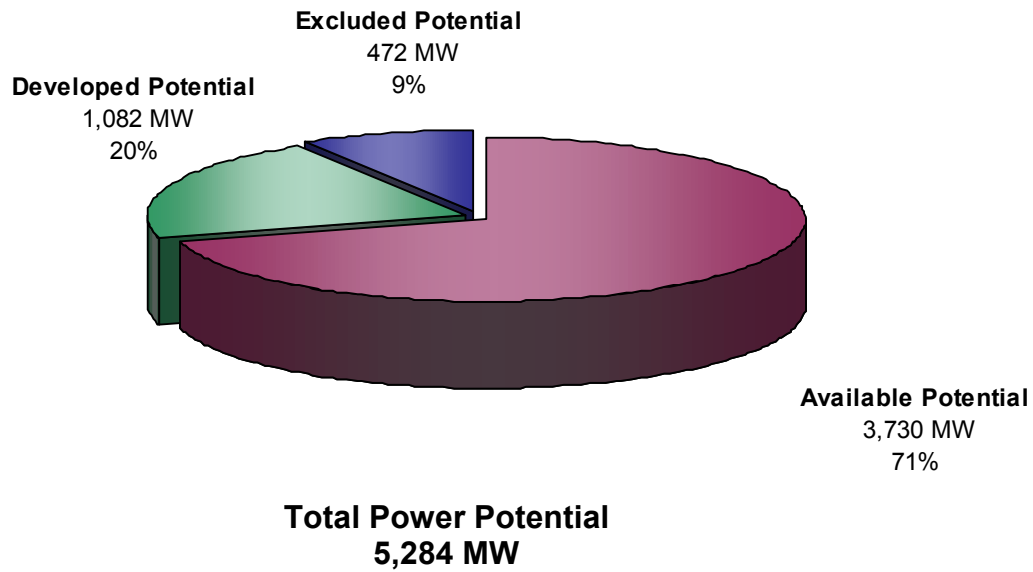
Excluded Potential
472 MW
9%

Developed Potential
1,082 MW
20%

Available Potential
3,730 MW
71%

Total Power Potential
5,284 MW

Figure B-207. Power category distribution of the total power potential (annual mean power) of water energy resources in Tennessee.

High Head/Low Power
397 MW
11%

Low Head/Low Power
433 MW
12%

High Power
2,900 MW
78%

Total Available Potential
3,730 MW
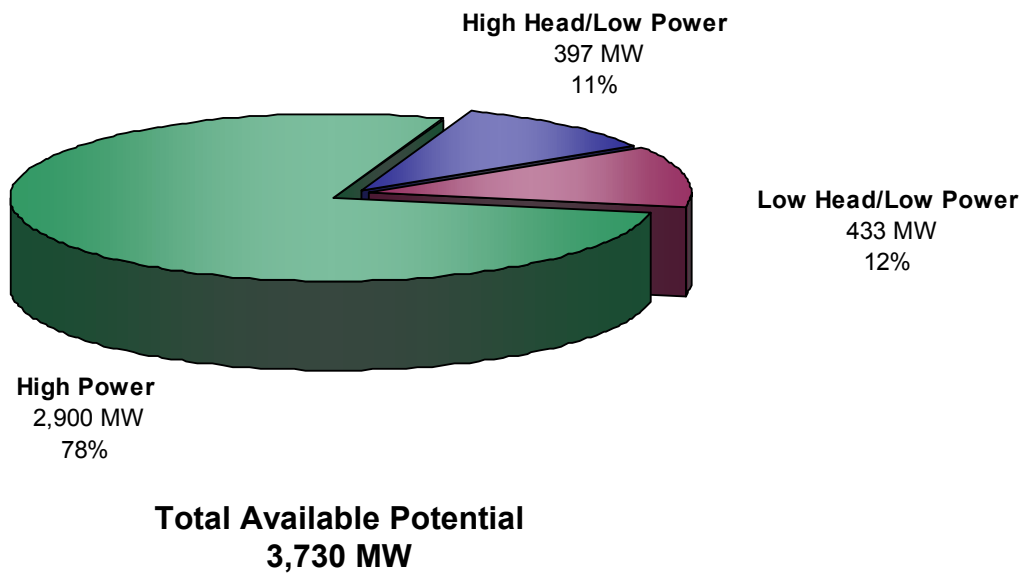
Figure B-208. Power class distribution of the available power potential (annual mean power) of water energy resources in Tennessee.

Microhydro Total
218 MW
Microhydro Developed
& Excluded
8 MW

Microhydro Available
210 MW
(48% of total available)

Conventional
Turbines Total
151 MW
Conventional
Turbines Available
145 MW
(33% of total available)

Conventional Turbines
Developed and Excluded
6 MW

Unconventional
Systems Total
84 MW
Unconventional Systems Available
78 MW
(18% of total available)

Unconventional
Systems Developed & Excluded
6 MW

Low Head/Low Power Totals
Total Potential: 453 MW
Developed Potential: 0 MW
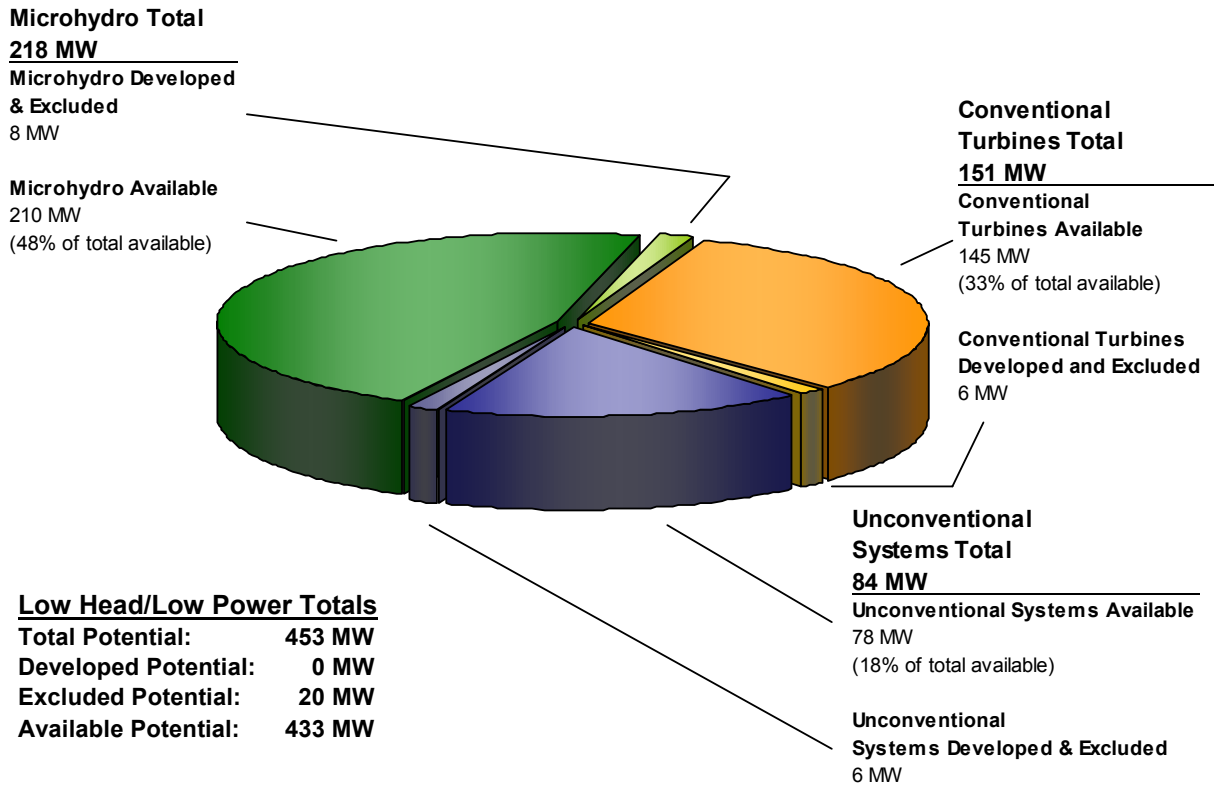**Excluded Potential:** 20 MW
Available Potential: 433 MW

Figure B-209. Distribution of the low head/low power power potential (annual mean power) of water energy resources in Tennessee among three low head/low power hydropower technology classes.
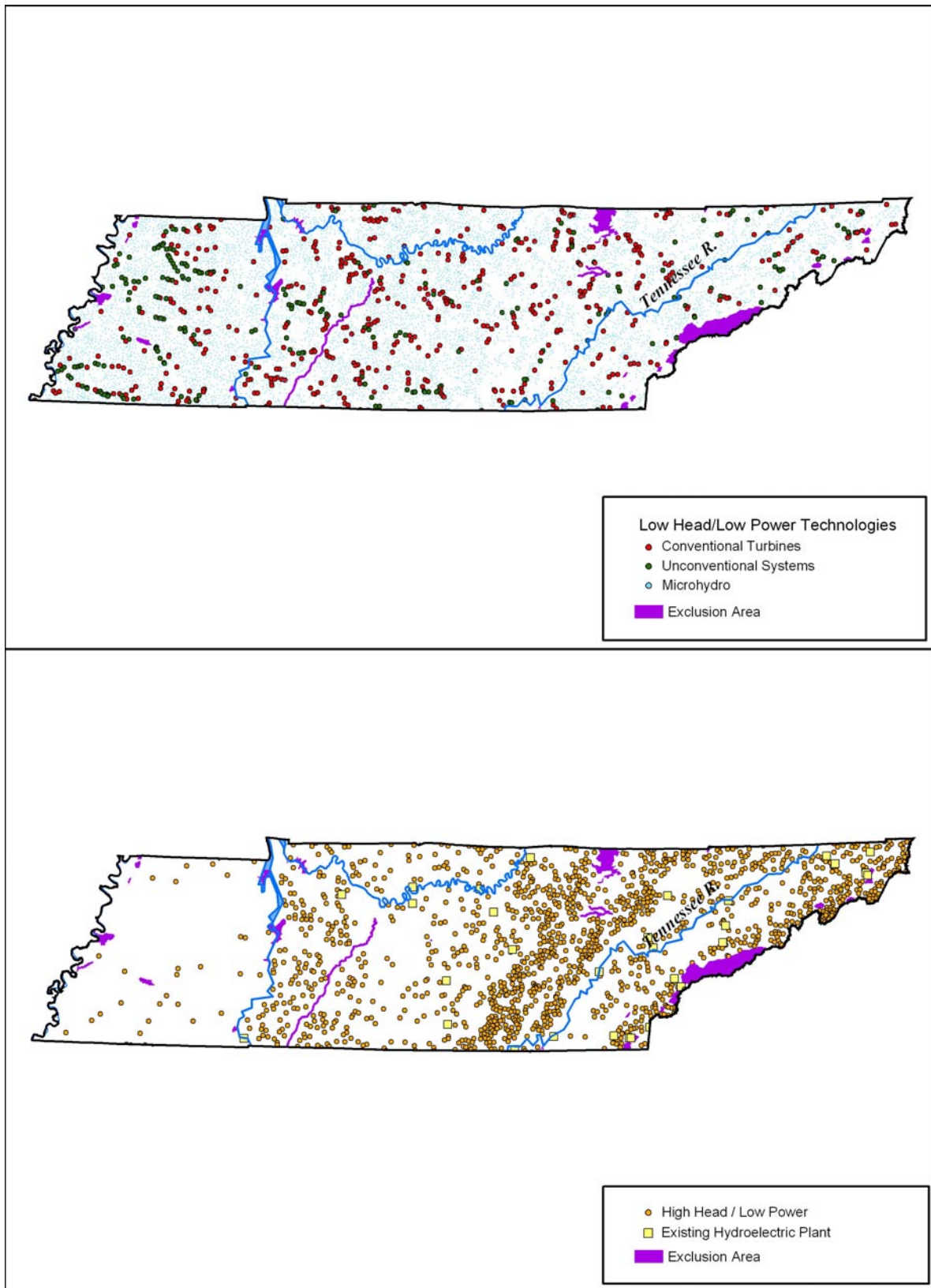
Figure B-210. Low head/low power and high head/low power water energy sites, and existing hydroelectric plants in Tennessee.
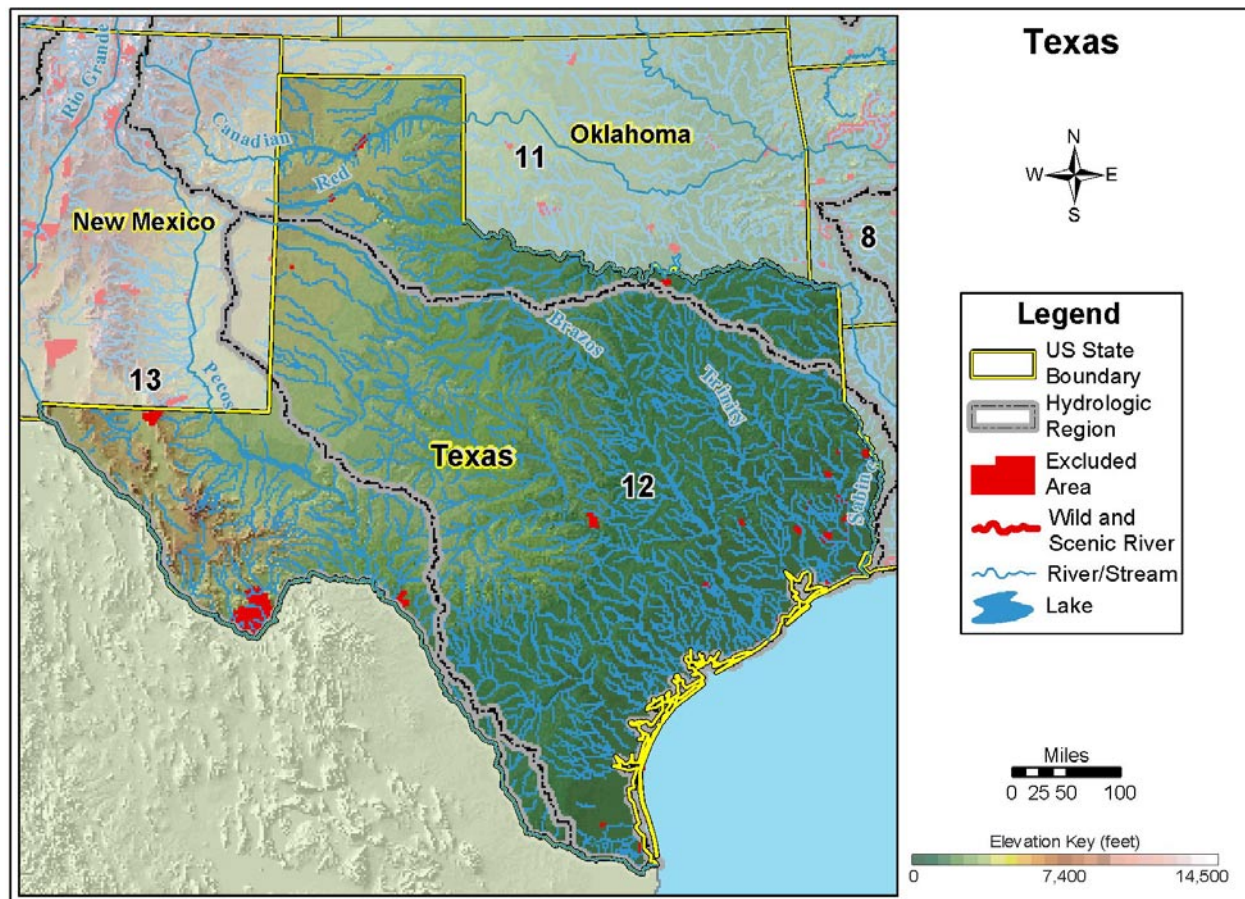
B.43 Texas

Figure B-211. Texas.

Table B-43. Summary of results of hydropower resource assessment of Texas.

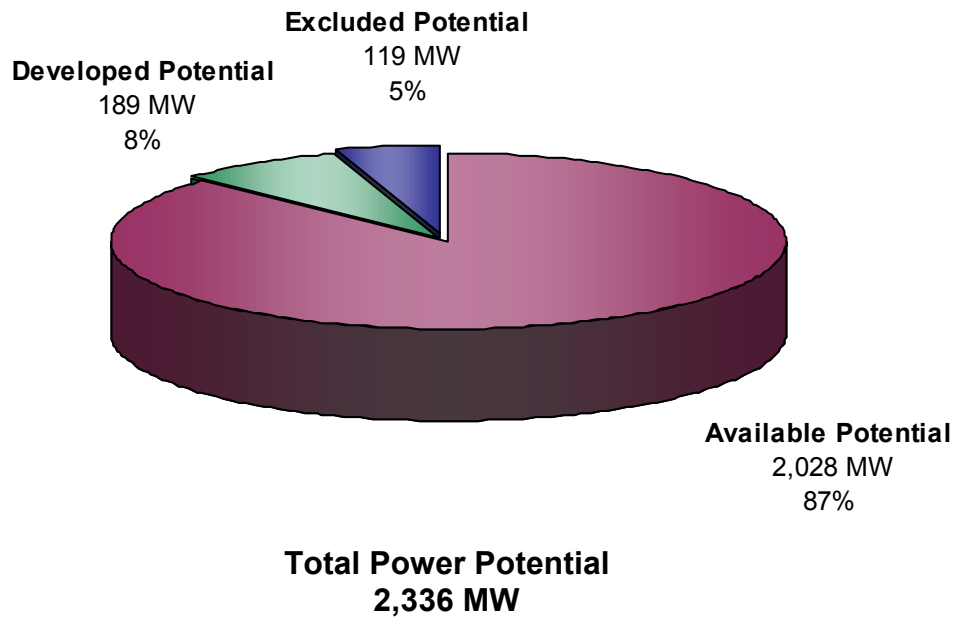| Annual Mean Power (MW)	Total	Developed	Excluded	Available[a]
TOTAL POWER	**2,336**	**189**	**119**	**2,028**
TOTAL HIGH POWER	**627**	**183**	**83**	**361**
High Head/High Power	273	178	33	62
Low Head/High Power	354	5	50	299
TOTAL LOW POWER	**1,709**	**6**	**36**	**1,667**
High Head/Low Power	248	1	5	242
Low Head/Low Power	1,461	5	31	1,425
Conventional Turbine	452	5	9	438
Unconventional Systems	253	0	11	242
Microhydro	756	0	11	745
a. No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.				

Developed Potential
189 MW
8%

Excluded Potential
119 MW
5%

Available Potential
2,028 MW
87%

Total Power Potential
2,336 MW

Figure B-212. Power category distribution of the total power potential (annual mean power) of water energy resources in Texas.

High Power
361W
18%

High Head/Low Power
242 MW
12%

Low Head/Low Power
1,425 MW
70%

Total Available Potential
2,028 MW

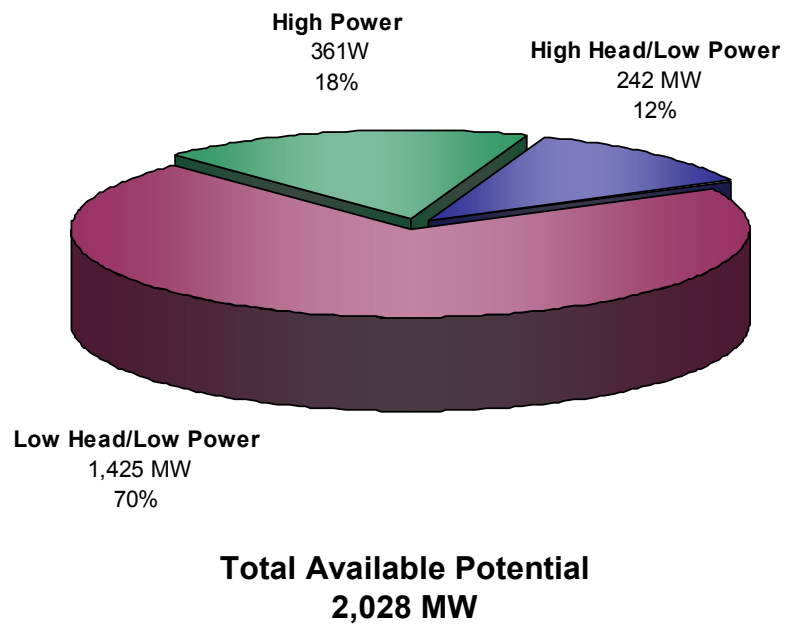Figure B-213. Power class distribution of the available power potential (annual mean power) of water energy resources in Texas.

Microhydro Total
756 MW
Microhydro Developed
& Excluded
11 MW

Microhydro Available
745 MW
(52% of total available)

Conventional
Turbines Total
452 MW
Conventional
Turbines Available
438 MW
(31% of total available)

Conventional Turbines
Developed and Excluded
14 MW

Unconventional
Systems Total
253 MW
Unconventional Systems Available
242 MW
(17% of total available)

Unconventional
Systems Developed & Excluded
11 MW

Low Head/Low Power Totals
Total Potential: 1,461 MW
Developed Potential: 5 MW
Excluded Potential: 31 MW
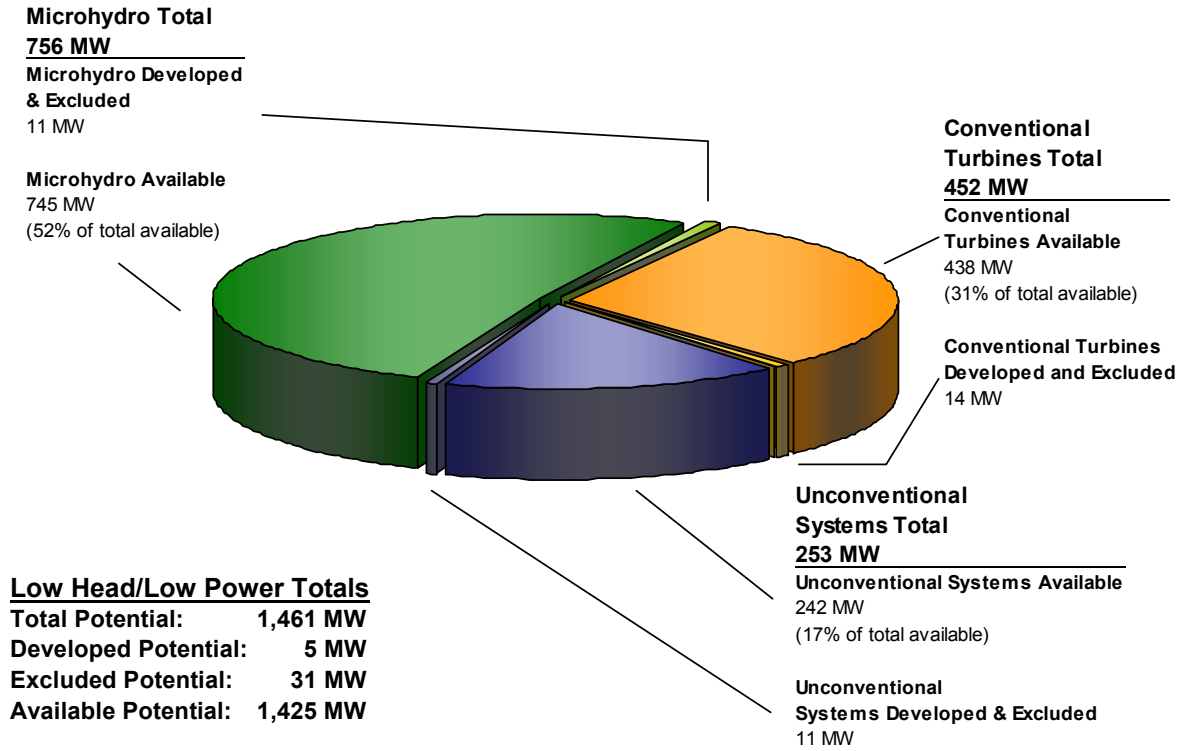**Available Potential: 1,425 MW**

Figure B-214. Distribution of the low head/low power power potential (annual mean power) of water energy resources in Texas among three low head/low power hydropower technology classes.
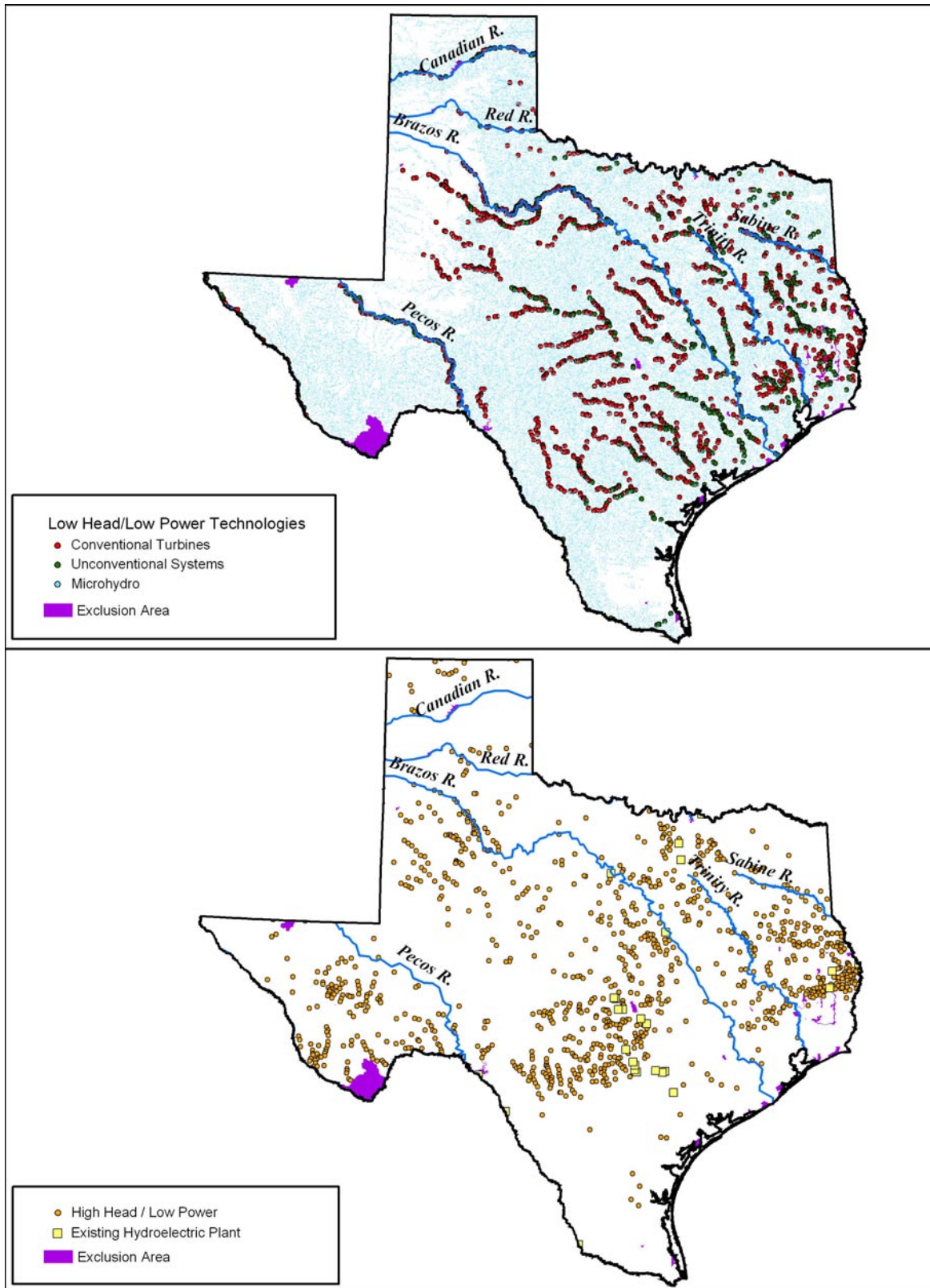
Figure B-215. Low head/low power and high head/low power water energy sites, and existing hydroelectric plants in Texas.
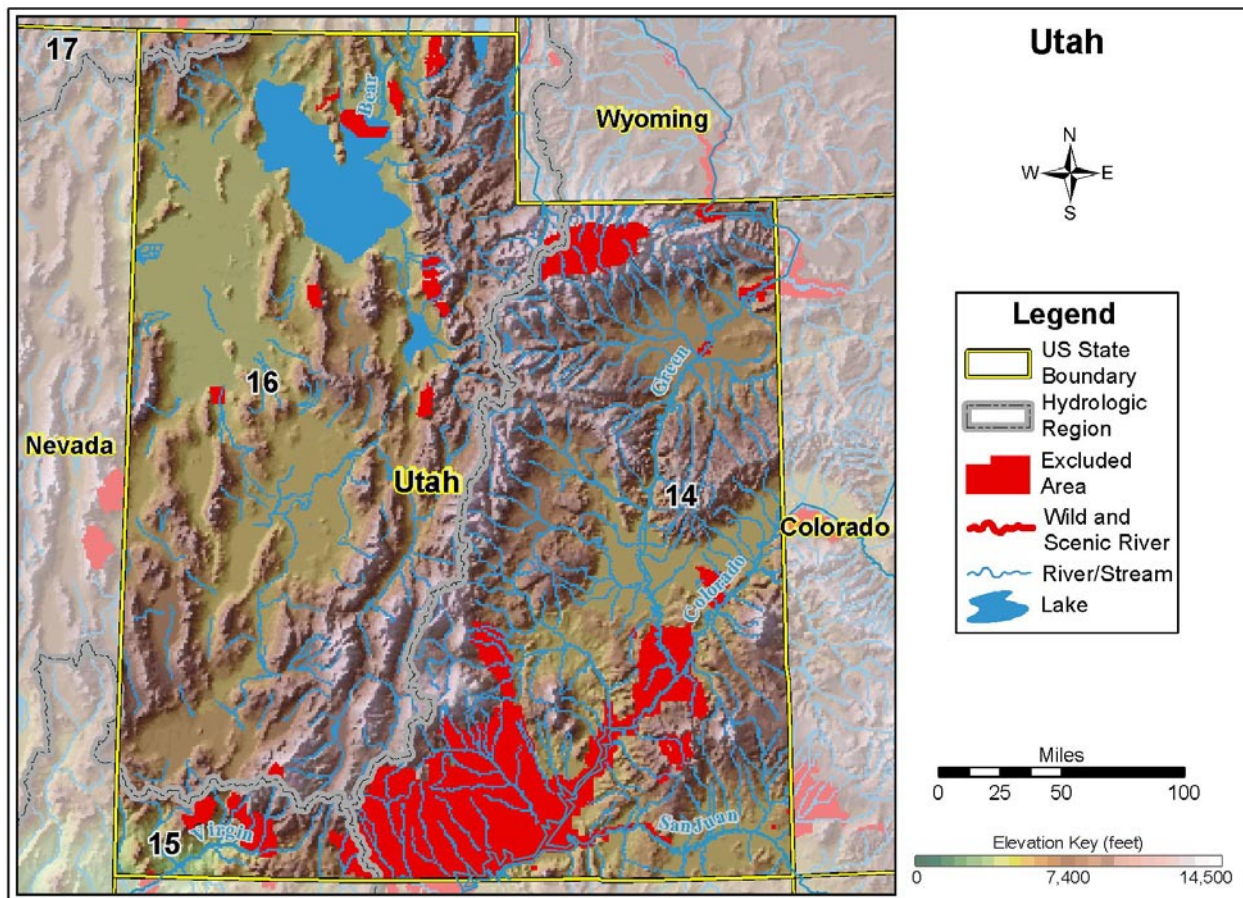
B.44 Utah

Figure B-216. Utah.

Table B-44. Summary of results of hydropower resource assessment of Utah.

Annual Mean Power (MW)	Total	Developed	Excluded	Availablea
TOTAL POWER	**3,924**	**135**	**933**	**2,856**
TOTAL HIGH POWER	**2,385**	**117**	**755**	**1,513**
High Head/High Power	1,777	117	556	1,104
Low Head/High Power	608	0	199	409
TOTAL LOW POWER	**1,539**	**18**	**178**	**1,343**
High Head/Low Power	1,126	17	139	970
Low Head/Low Power	413	1	39	373
Conventional Turbine	92	1	4	87
Unconventional Systems	37	0	5	32
Microhydro	284	0	30	254

a. No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.
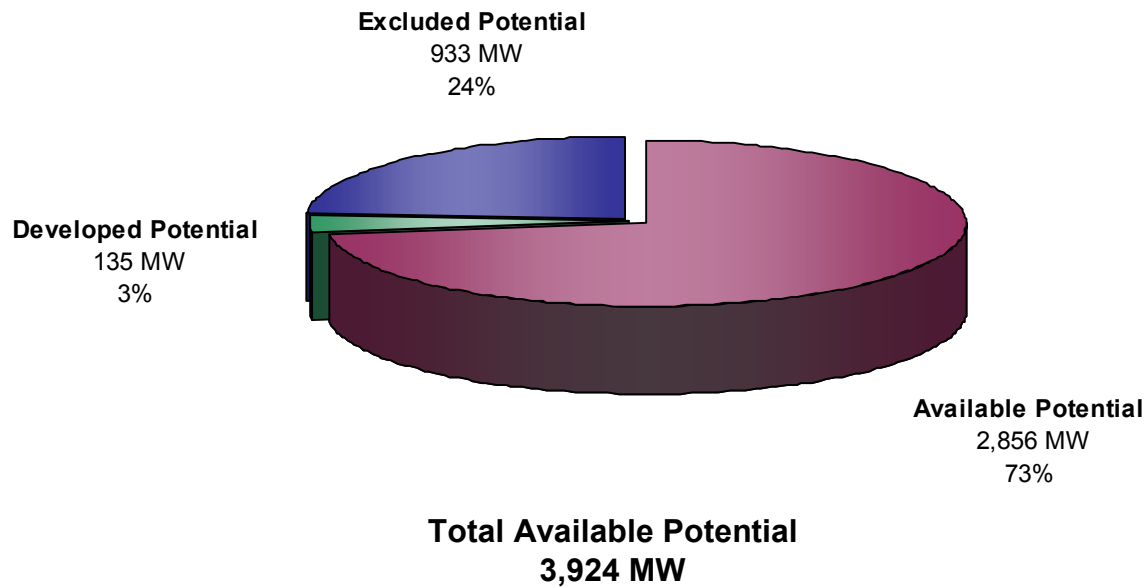
Excluded Potential
933 MW
24%

Developed Potential
135 MW
3%

Available Potential
2,856 MW
73%

Total Available Potential
3,924 MW

Figure B-217. Power category distribution of the total power potential (annual mean power) of water energy resources in Utah.

High Power
1,513 MW
53%

High Head/Low Power
970 MW
34%

Low Head/Low Power
373 MW
13%

Total Available Potential
2,856 MW
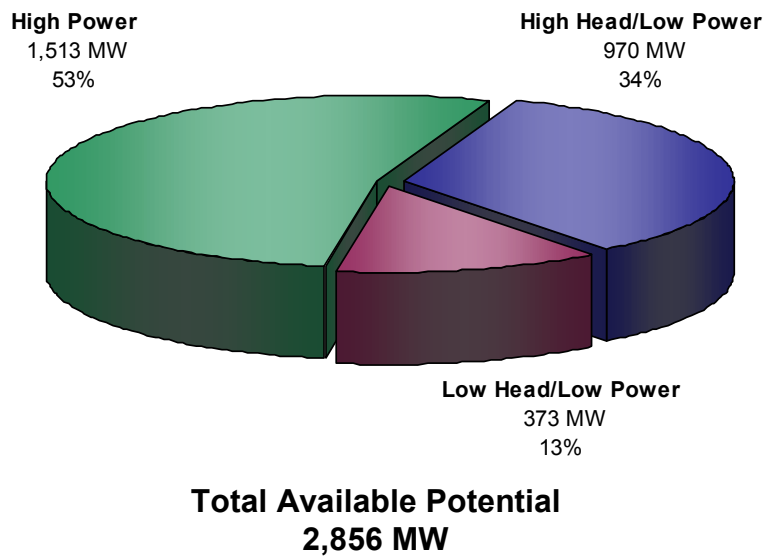
Figure B-218. Power class distribution of the available power potential (annual mean power) of water energy resources in Utah.

Microhydro Total
284 MW
Microhydro Developed
& Excluded
30 MW

Microhydro Available
254 MW
(68% of total available)

**Conventional
Turbines Total
92 MW**
Conventional
Turbines Available
87 MW
(23% of total available)

Conventional Turbines
Developed and Excluded
5 MW

**Unconventional
Systems Total
37 MW**
Unconventional Systems Available
32 MW
(9% of total available)

Unconventional
Systems Developed & Excluded
5 MW

Low Head/Low Power Totals
Total Potential: **413 MW**
Developed Potential: **1 MW**
Excluded Potential: **39 MW**
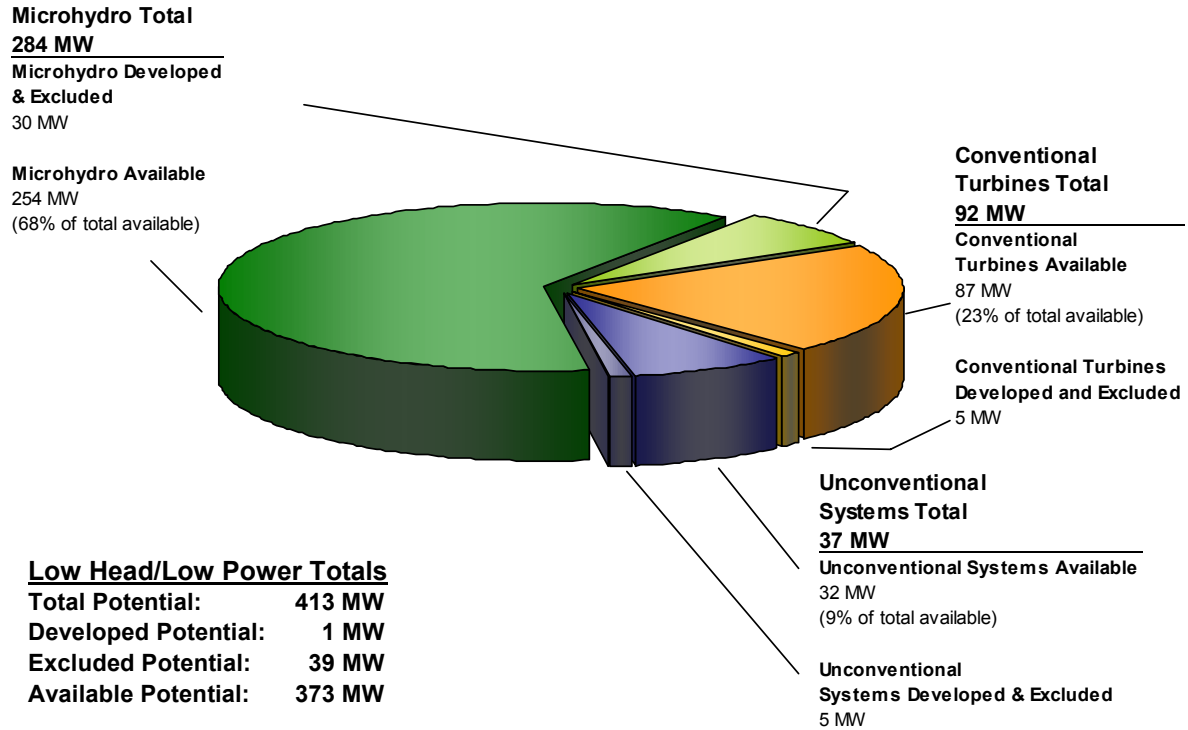**Available Potential:** **373 MW**

Figure B-219. Distribution of the low head/low power power potential (annual mean power) of water energy resources in Utah among three low head/low power hydropower technology classes.
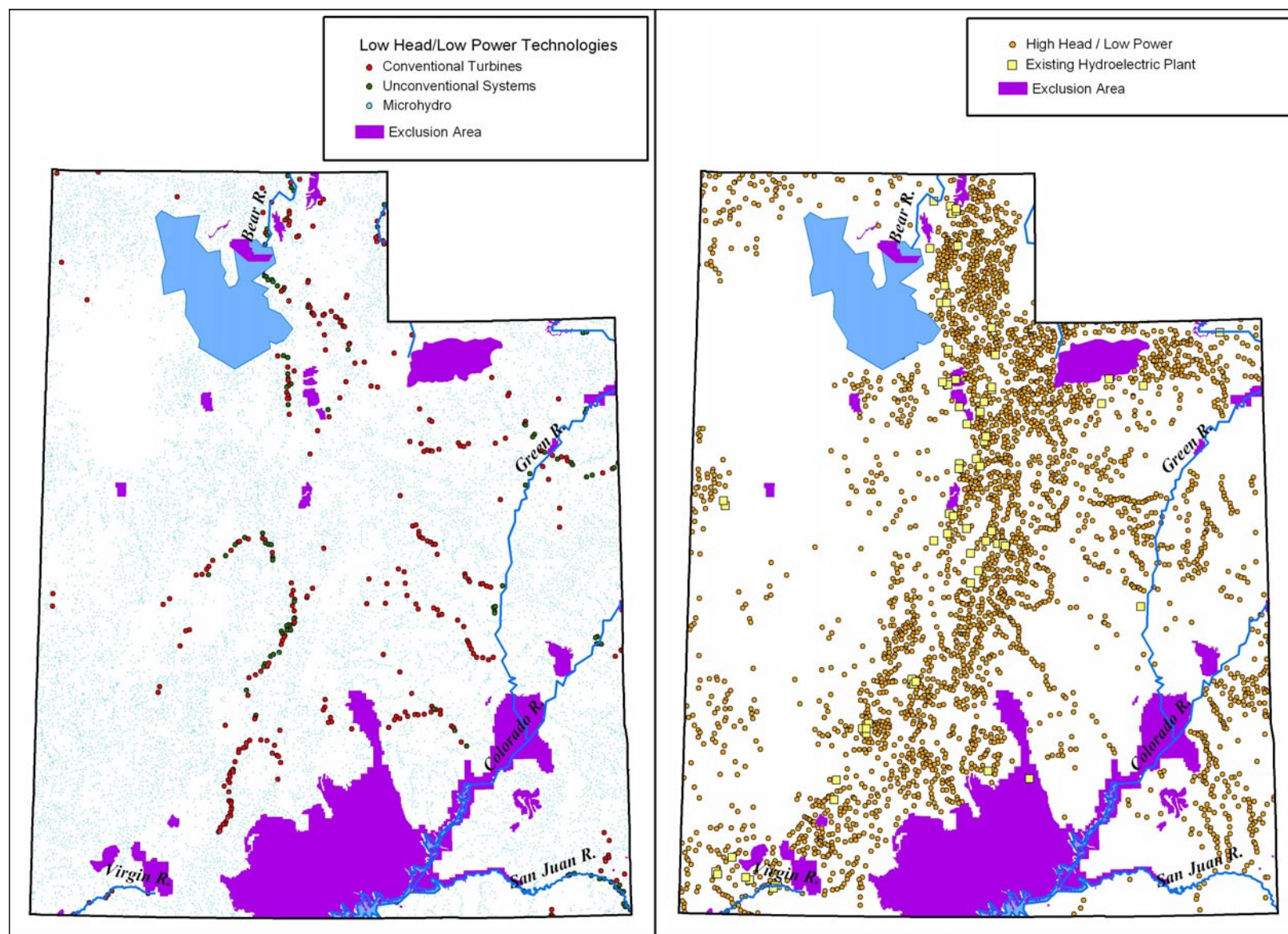
Figure B-220. Low head/low power and high head/low power water energy sites, and existing hydroelectric plants in Utah.
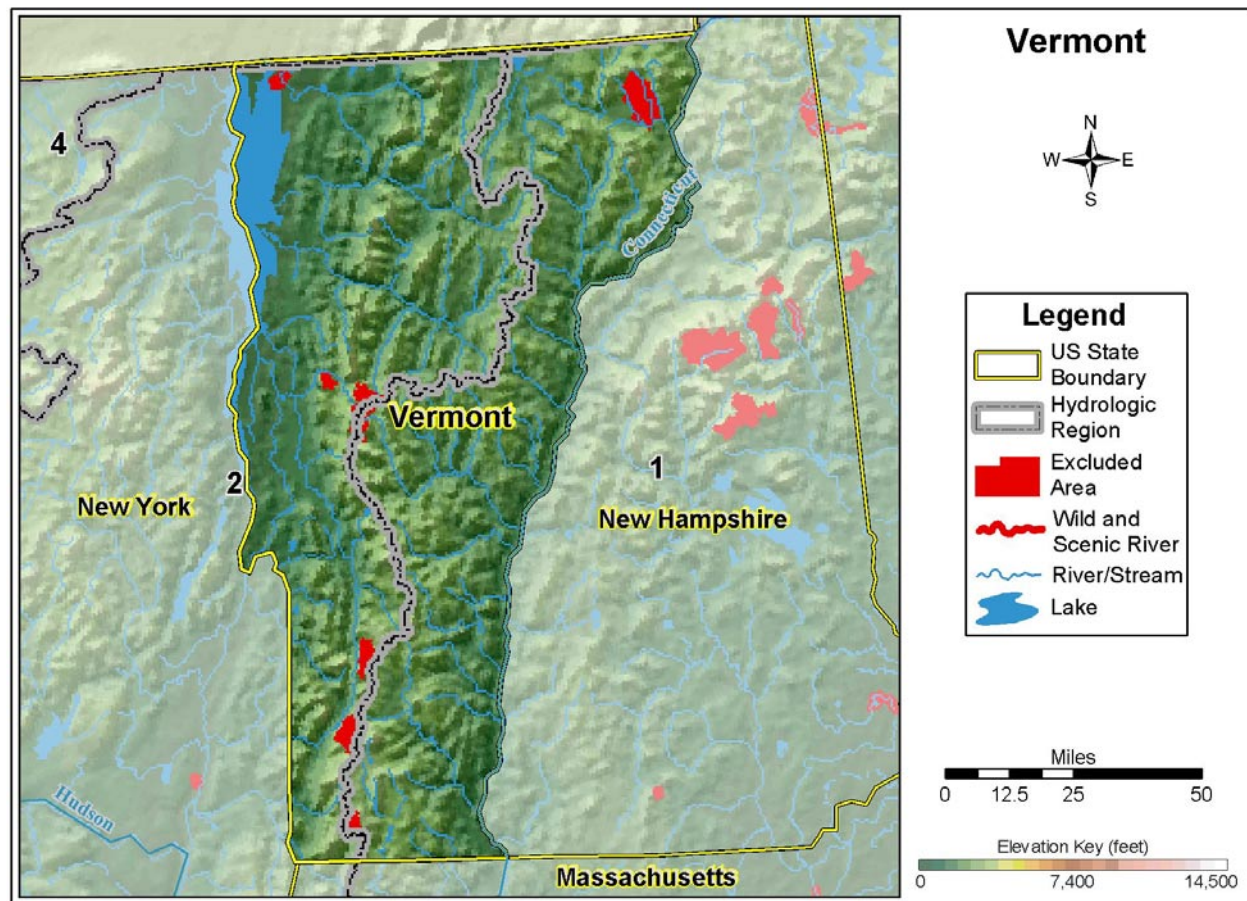
B.45 Vermont

Figure B-221. Vermont.

Table B-45. Summary of results of hydropower resource assessment of Vermont.

| Annual Mean Power (MW)	Total	Developed	Excluded	Available[a]
TOTAL POWER	**1,144**	**128**	**49**	**967**
TOTAL HIGH POWER	**682**	**110**	**34**	**538**
High Head/High Power	**533**	**107**	**33**	**393**
Low Head/High Power	**149**	**3**	**1**	**145**
TOTAL LOW POWER	**462**	**18**	**15**	**429**
High Head/Low Power	**372**	**13**	**14**	**345**
Low Head/Low Power	**90**	**5**	**1**	**84**
Conventional Turbine	40	4	0	36
Unconventional Systems	15	0	0	15
Microhydro	35	1	1	33
a. No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.				

Excluded Potential
49 MW
4%

Developed Potential
128 MW
11%

Available Potential
967 MW
85%

Total Power Potential
1,144 MW
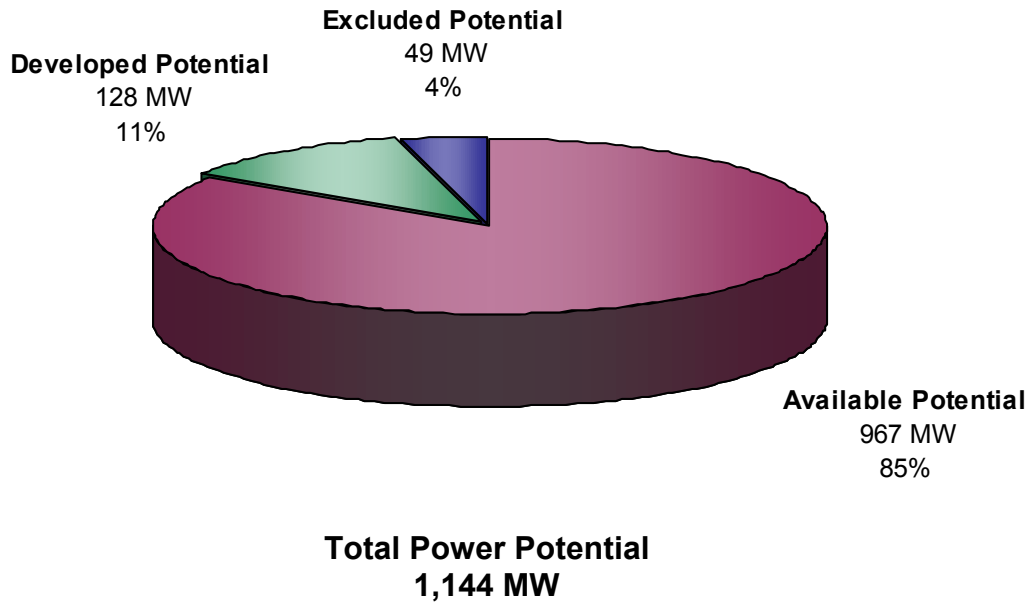
Figure B-222. Power category distribution of the total power potential (annual mean power) of water energy resources in Vermont.

High Power
538 MW
56%

High Head/Low Power
345 MW
36%

Low Head/Low Power
84 MW
9%

Total Available Potential
967 MW
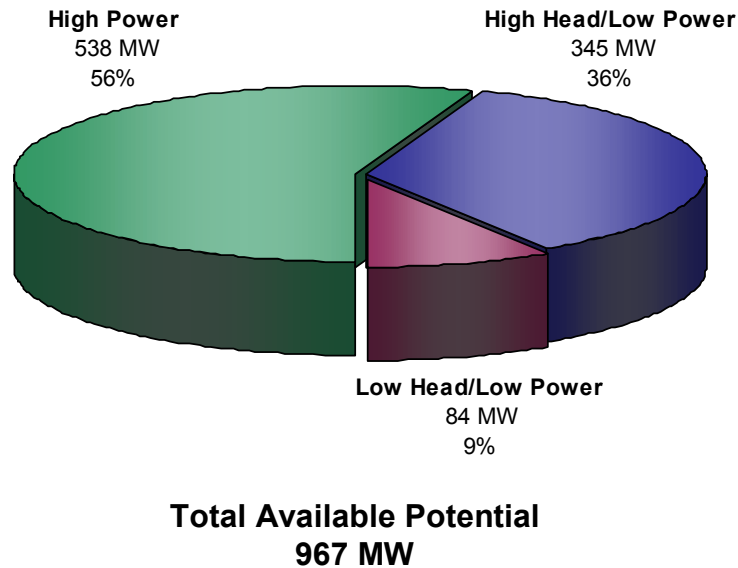
Figure B-223. Power class distribution of the available power potential (annual mean power) of water energy resources in Vermont.

Microhydro Total
35 MW
Microhydro Developed
& Excluded
2 MW

Microhydro Available
33 MW
(39% of total available)

Conventional
Turbines Total
40 MW
Conventional
Turbines Available
36 MW
(43% of total available)

Conventional Turbines
Developed and Excluded
4 MW

Unconventional
Systems Total
15 MW
Unconventional Systems Available
15 MW
(18% of total available)

Unconventional
Systems Developed & Excluded
0 MW

Low Head/Low Power Totals
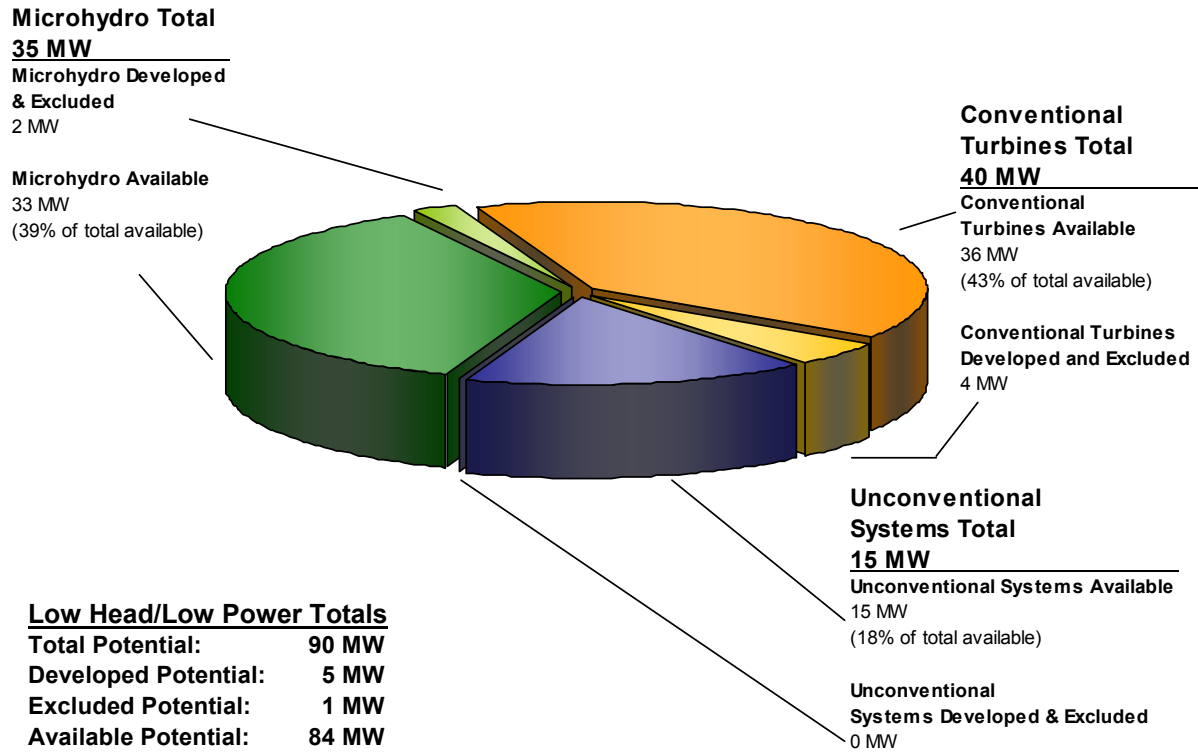|	
Total Potential:	**90 MW**
Developed Potential:	**5 MW**
Excluded Potential:	**1 MW**
Available Potential:	**84 MW**

Figure B-224. Distribution of the low head/low power power potential (annual mean power) of water energy resources in Vermont among three low head/low power hydropower technology classes.
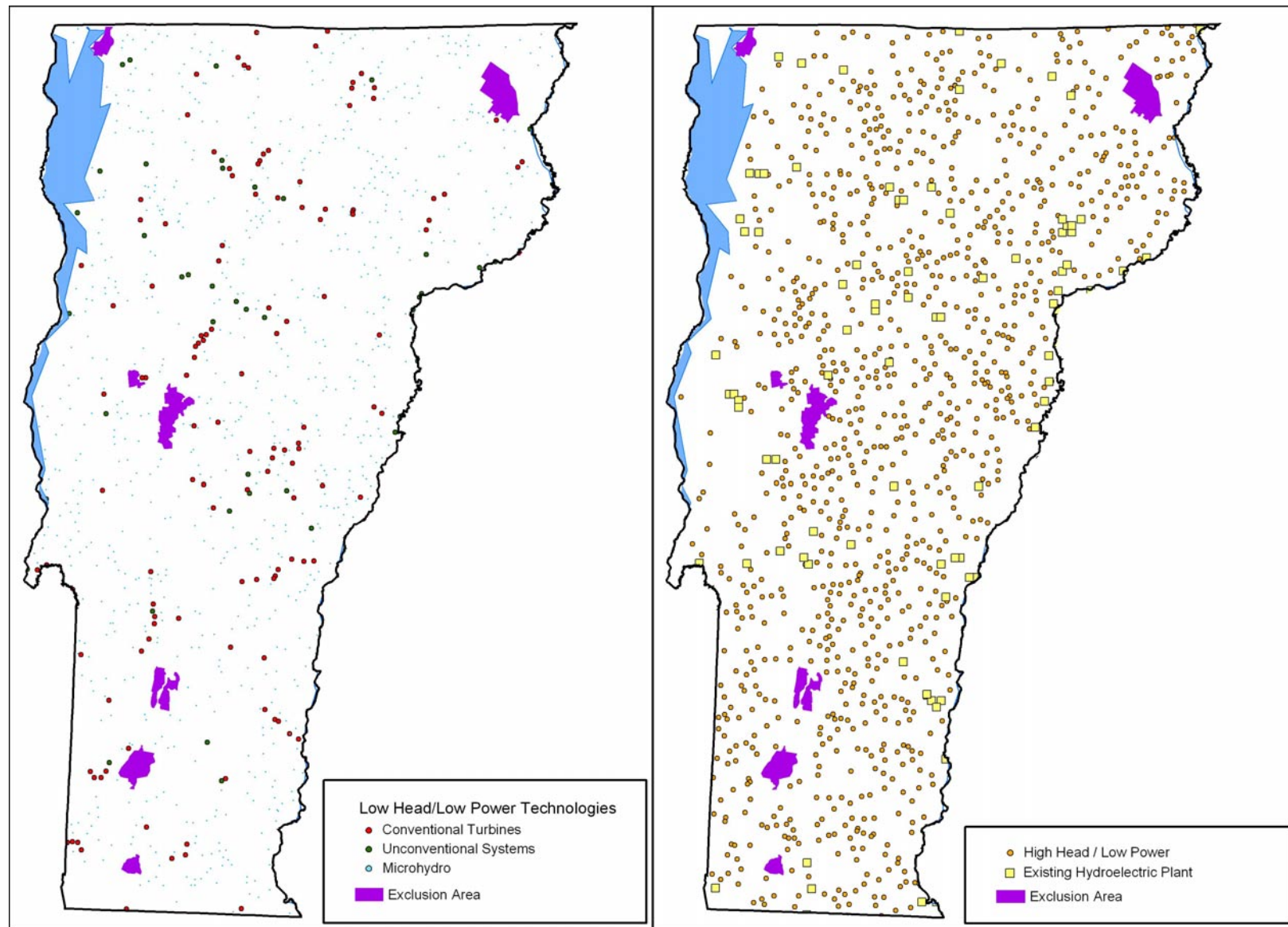
Figure B-225. Low head/low power and high head/low power water energy sites, and existing hydroelectric plants in Vermont.
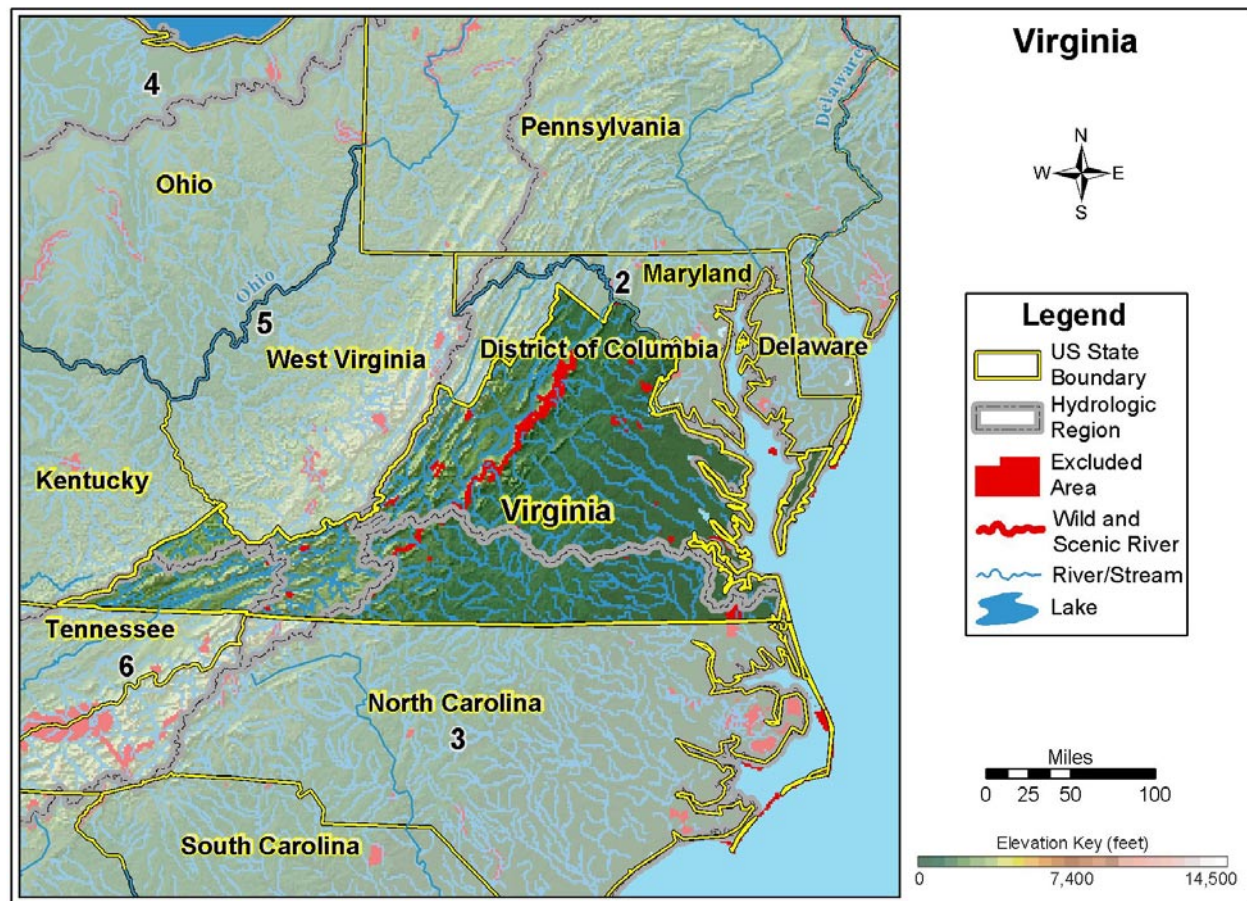
B.46 Virginia

Figure B-226. Virginia.

Table B-46. Summary of results of hydropower resource assessment of Virginia.

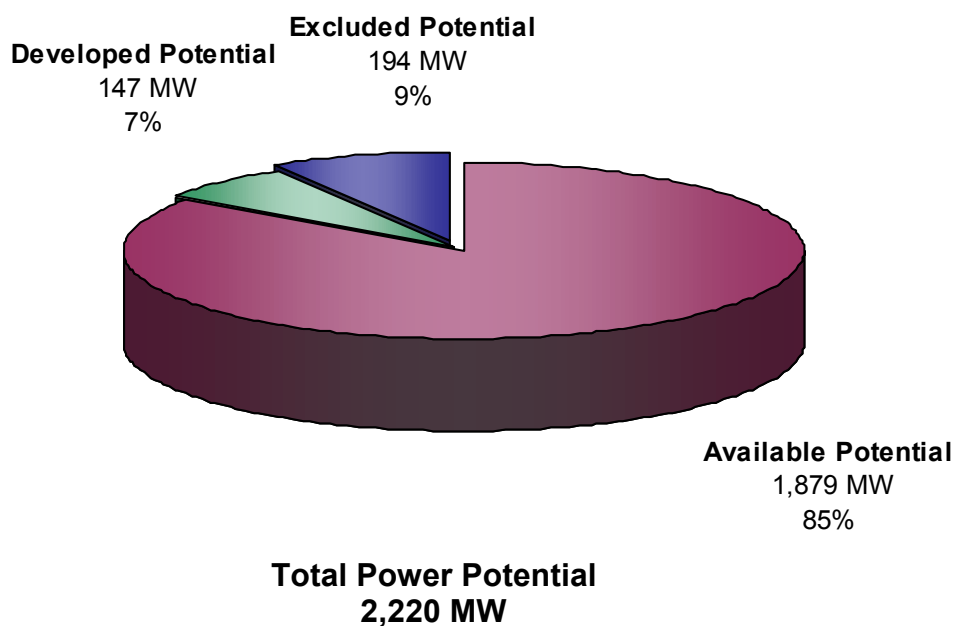| Annual Mean Power (MW)	Total	Developed	Excluded	Available[a]
TOTAL POWER	**2,220**	**147**	**194**	**1,879**
TOTAL HIGH POWER	**1,375**	**137**	**118**	**1,120**
High Head/High Power	847	131	65	651
Low Head/High Power	528	6	53	469
TOTAL LOW POWER	**845**	**10**	**76**	**759**
High Head/Low Power	478	4	64	410
Low Head/Low Power	367	6	12	349
Conventional Turbine	135	6	2	127
Unconventional Systems	50	0	1	49
Microhydro	182	0	9	173
a. No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.				

B-187

Developed Potential
147 MW
7%

Excluded Potential
194 MW
9%

Available Potential
1,879 MW
85%

Total Power Potential
2,220 MW

Figure B-227. Power category distribution of the total power potential (annual mean power) of water energy resources in Virginia.

High Power
1,120 MW
60%

High Head/Low Power
410 MW
22%

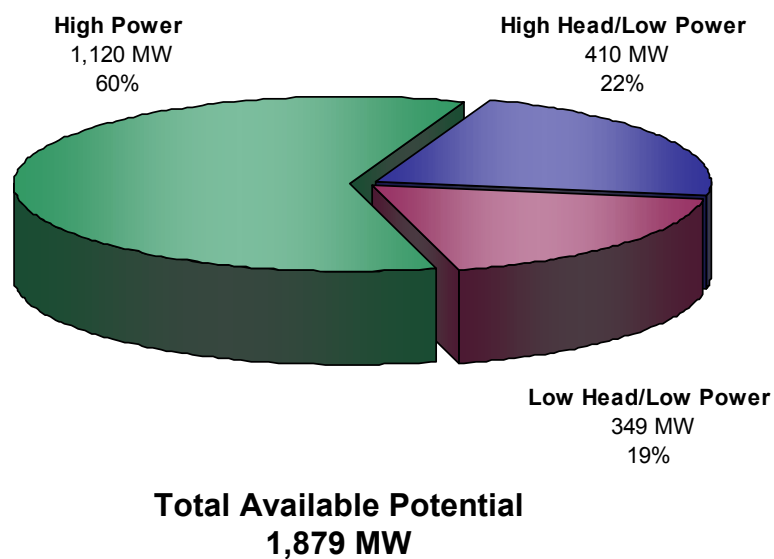**Low Head/Low Power**
349 MW
19%

Total Available Potential
1,879 MW

Figure B-228. Power class distribution of the available power potential (annual mean power) of water energy resources in Virginia.

Microhydro Total
182 MW
Microhydro Developed
& Excluded
9 MW

Microhydro Available
173 MW
(50% of total available)

Conventional
Turbines Total
135 MW
Conventional
Turbines Available
127 MW
(36% of total available)

Conventional Turbines
Developed and Excluded
8 MW

Unconventional
Systems Total
50 MW
Unconventional Systems Available
49 MW
(14% of total available)

Unconventional
Systems Developed & Excluded
1 MW

Low Head/Low Power Totals
Total Potential: **367 MW**
Developed Potential: **6 MW**
Excluded Potential: **12 MW**
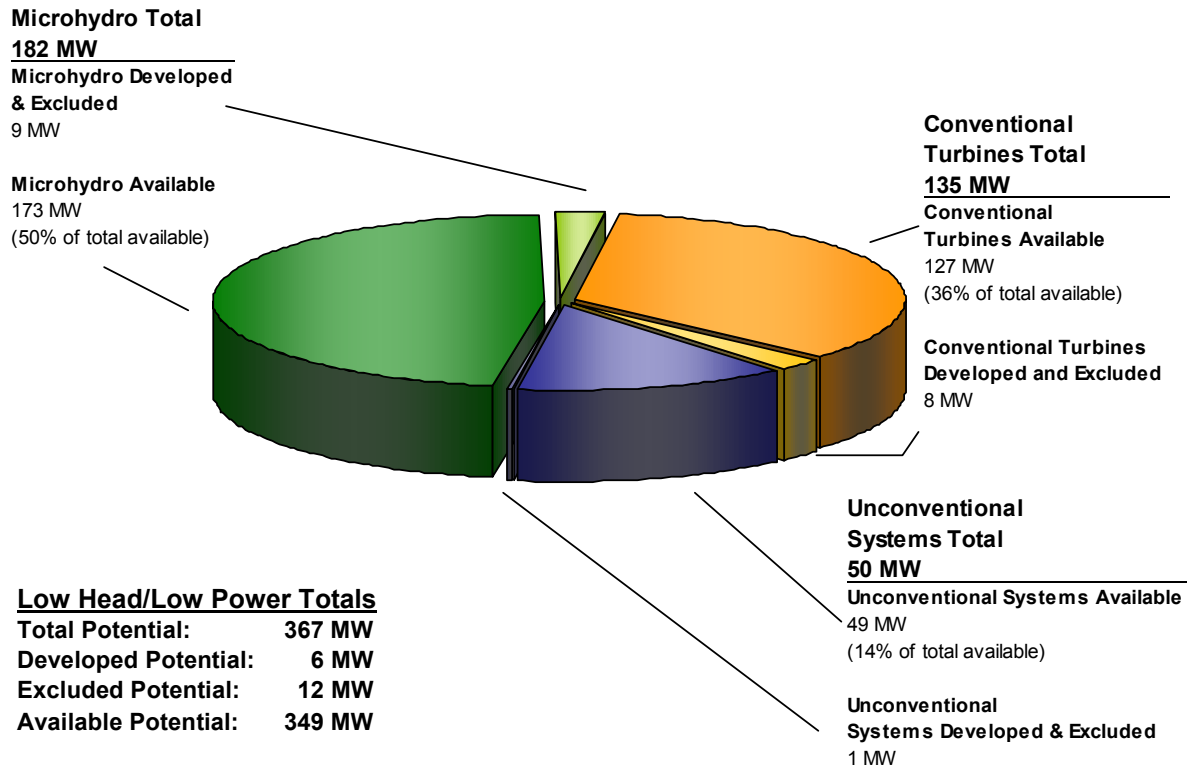**Available Potential:**   **349 MW**

Figure B-229. Distribution of the low head/low power power potential (annual mean power) of water energy resources in Virginia among three low head/low power hydropower technology classes.
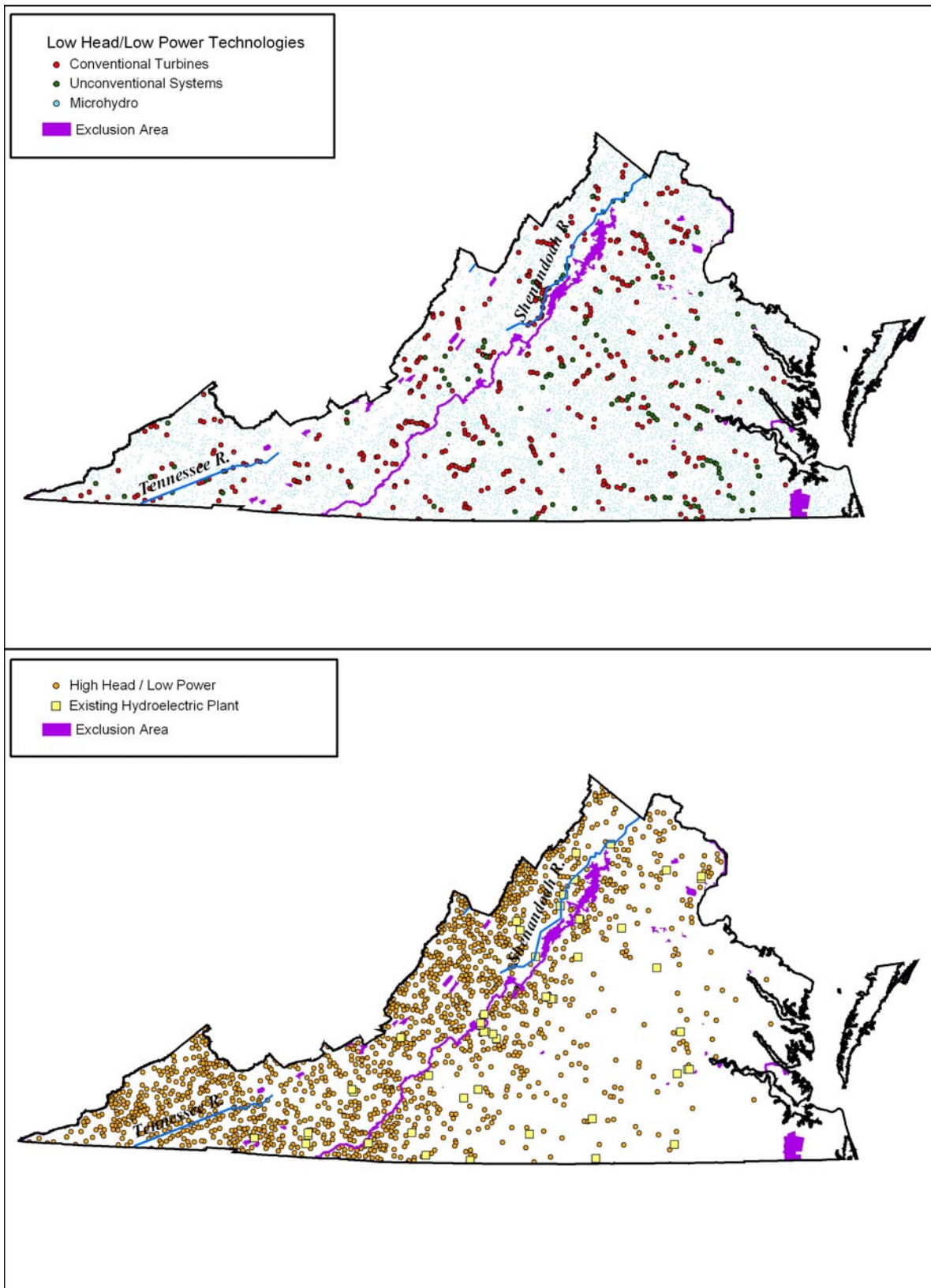
Figure B-230. Low head/low power and high head/low power water energy sites, and existing hydroelectric plants in Virginia.
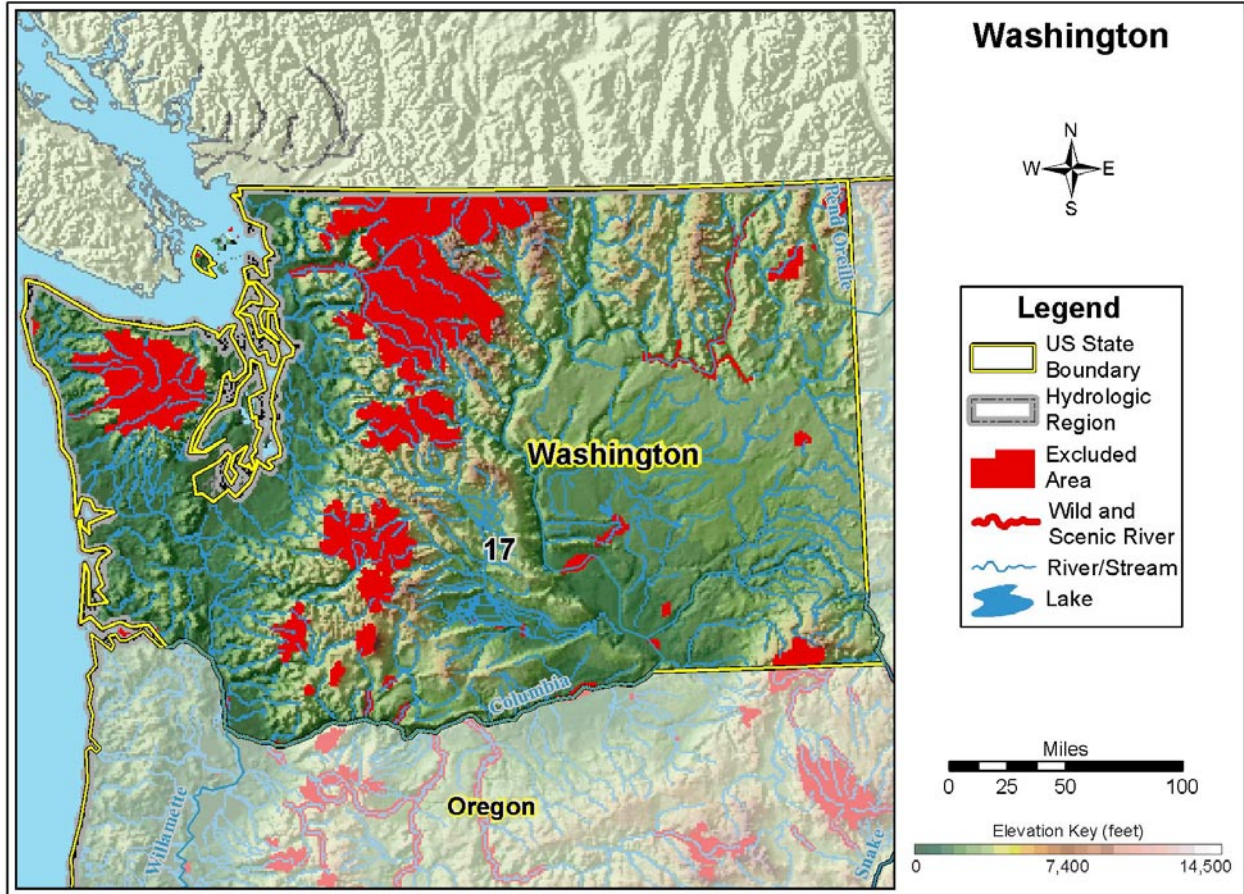
B.47 Washington

Figure B-231. Washington.

Table B-47. Summary of results of hydropower resource assessment of Washington.

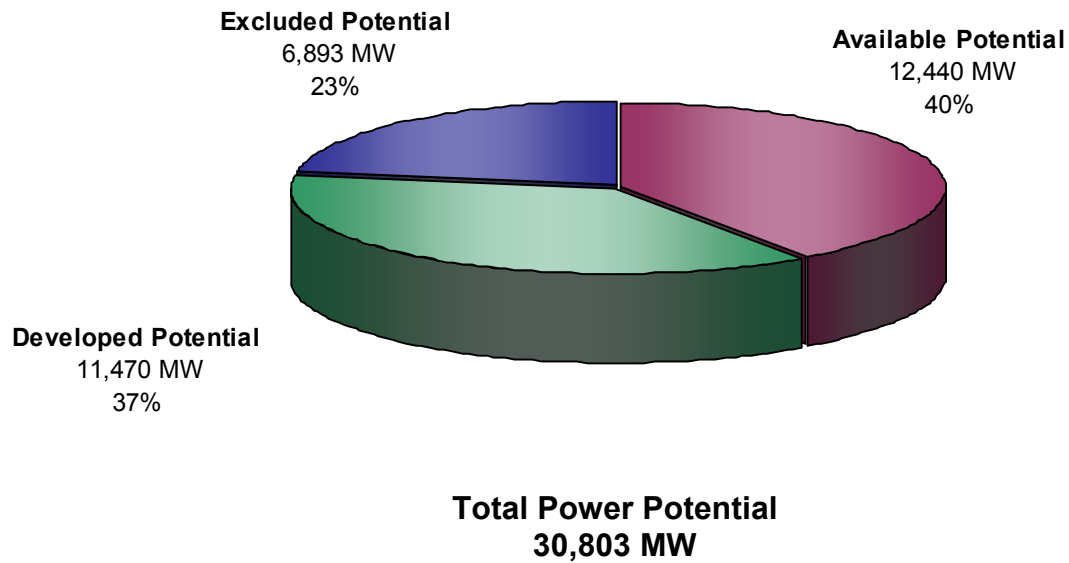| Annual Mean Power (MW)	Total	Developed	Excluded	Available[a]
TOTAL POWER	**30,803**	**11,470**	**6,893**	**12,440**
TOTAL HIGH POWER	**28,676**	**11,460**	**6,571**	**10,645**
High Head/High Power	25,969	11,460	5,901	8,608
Low Head/High Power	2,707	0	670	2,037
TOTAL LOW POWER	**2,127**	**10**	**322**	**1,795**
High Head/Low Power	1,691	10	296	1,385
Low Head/Low Power	436	0	26	410
Conventional Turbine	149	0	11	138
Unconventional Systems	80	0	6	74
Microhydro	207	0	9	198
a. No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.				

Excluded Potential
6,893 MW
23%

Available Potential
12,440 MW
40%

Developed Potential
11,470 MW
37%

**Total Power Potential
30,803 MW**

Figure B-232. Power category distribution of the total power potential (annual mean power) of water energy resources in Washington.

High Head/Low Power
1,385 MW
11%

Low Head/Low Power
410 MW
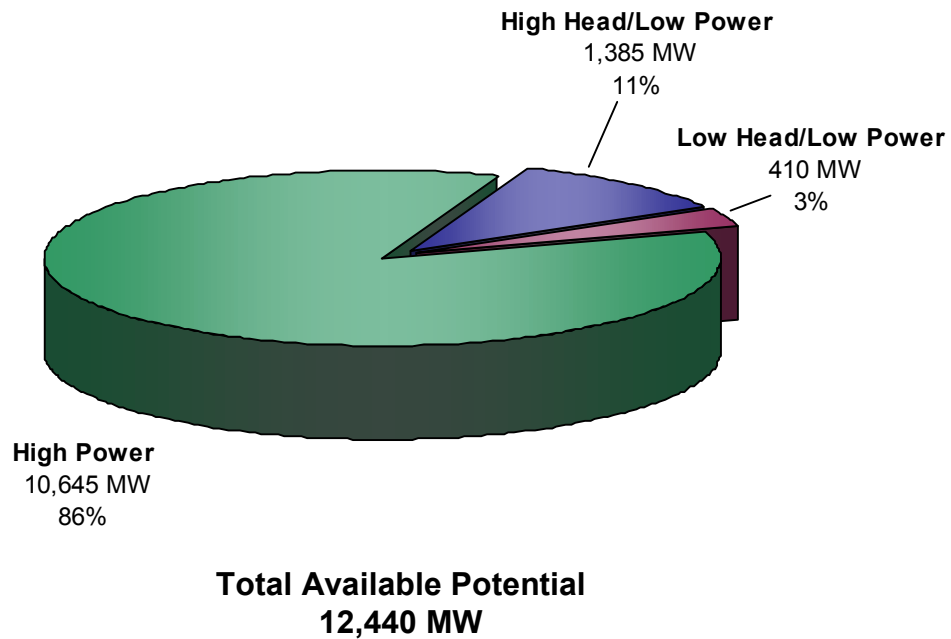3%

High Power
10,645 MW
86%

**Total Available Potential
12,440 MW**

Figure B-233. Power class distribution of the available power potential (annual mean power) of water energy resources in Washington.

Microhydro Total
207 MW
Microhydro Developed
& Excluded
9 MW

Microhydro Available
198 MW
(48% of total available)

Conventional
Turbines Total
149 MW
Conventional
Turbines Available
138 MW
(34% of total available)

Conventional Turbines
Developed and Excluded
11 MW

Unconventional
Systems Total
80 MW
Unconventional Systems Available
74 MW
(18% of total available)

Unconventional
Systems Developed & Excluded
6 MW

Low Head/Low Power Totals
Total Potential: **436 MW**
Developed Potential: **0 MW**
Excluded Potential: **26 MW**
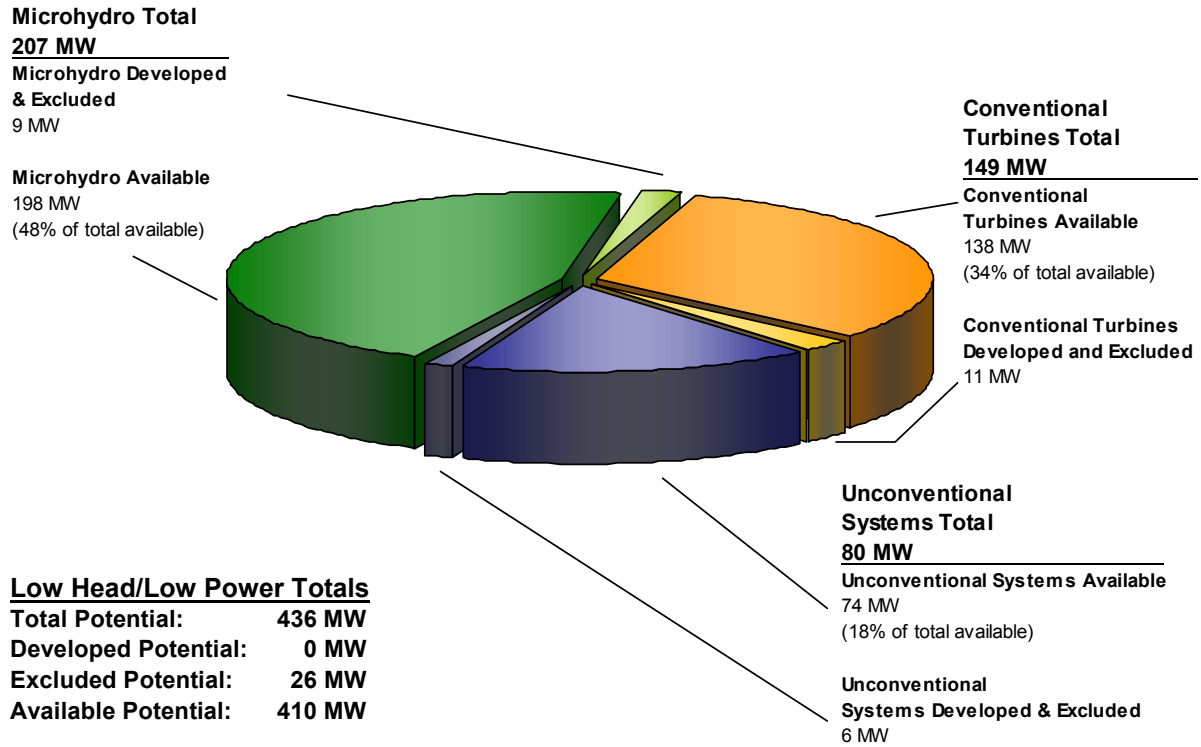**Available Potential:**   **410 MW**

Figure B-234. Distribution of the low head/low power power potential (annual mean power) of water energy resources in Washington among three low head/low power hydropower technology classes.
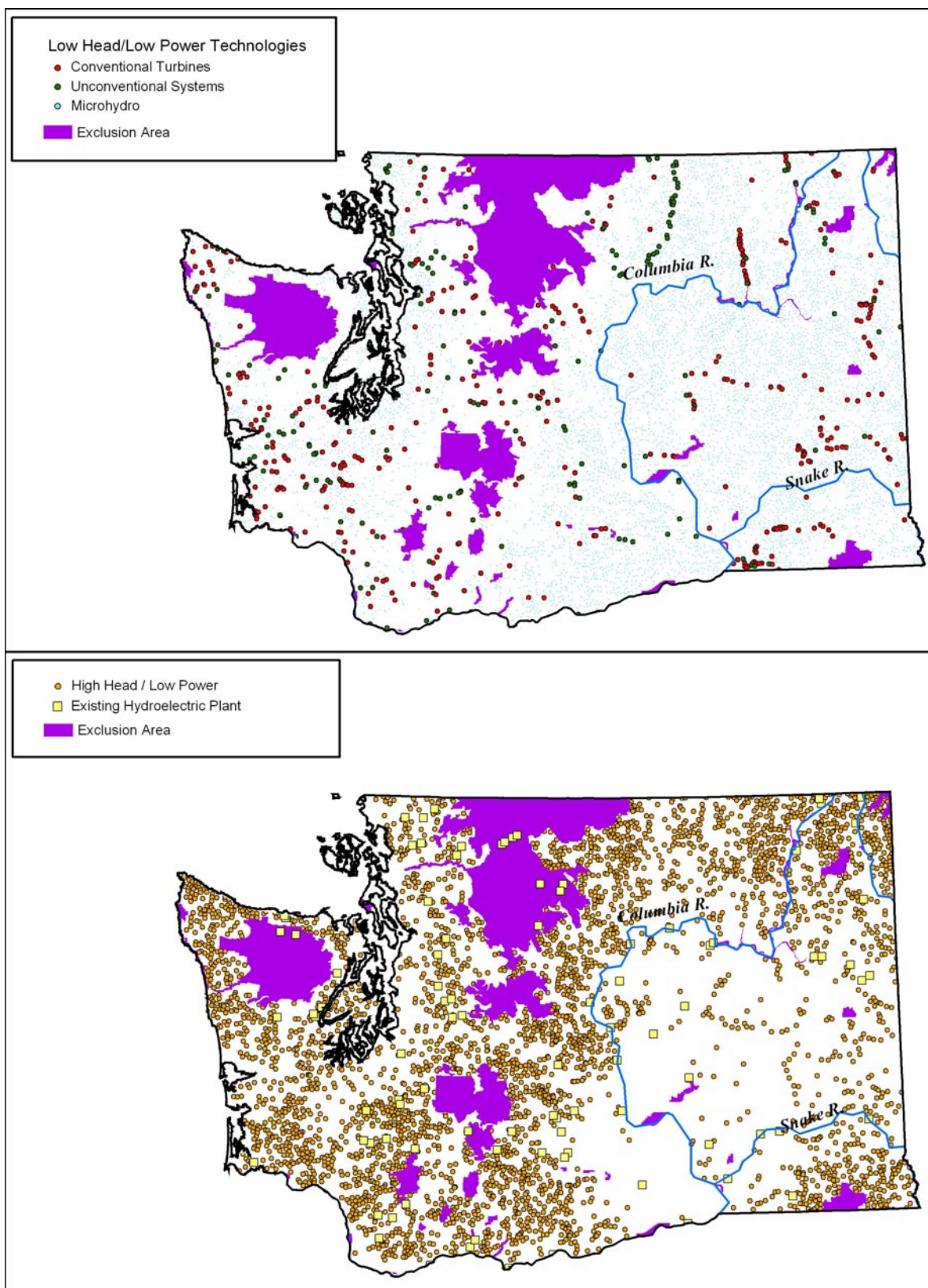
Figure B-235. Low head/low power and high head/low power water energy sites, and existing hydroelectric plants in Washington.
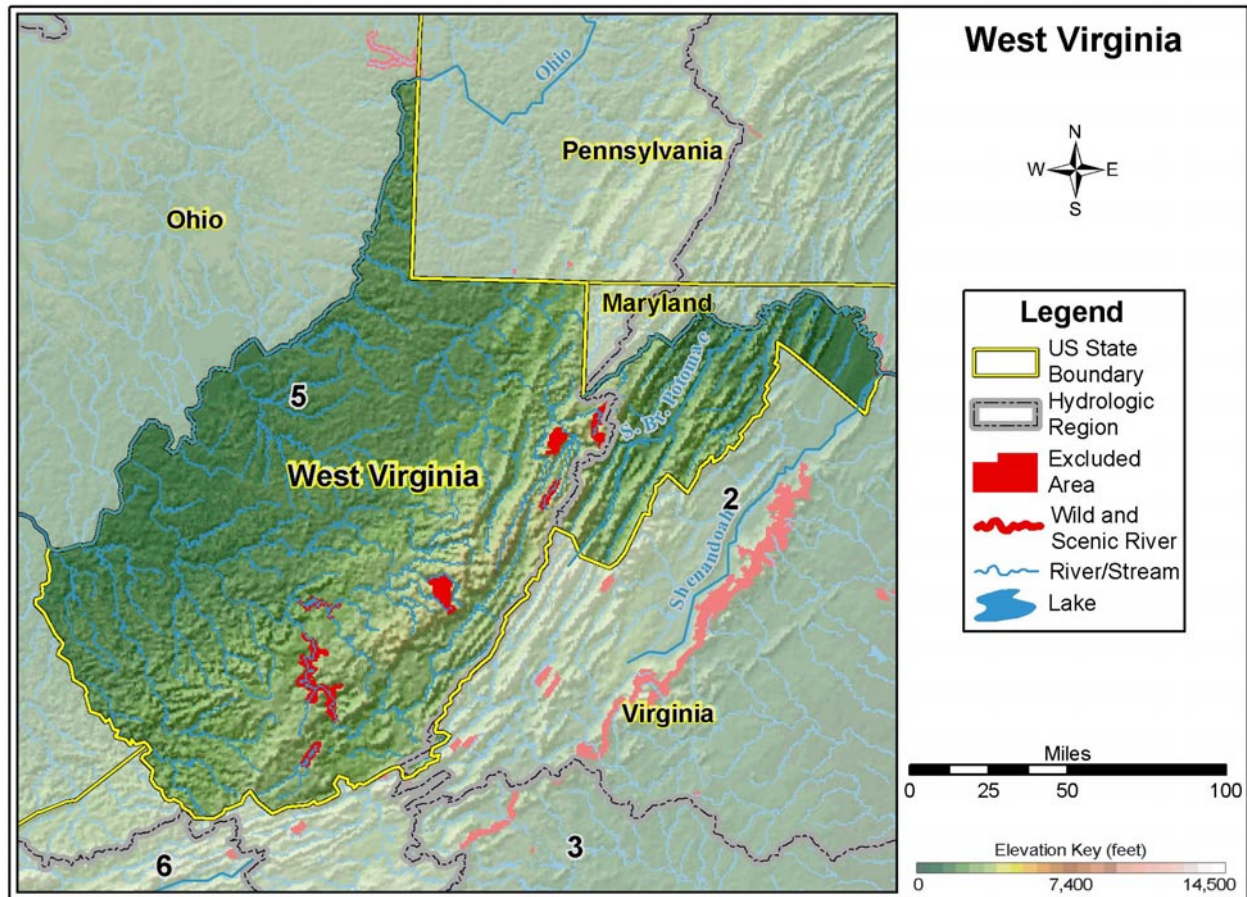
B.48 West Virginia

Figure B-236. West Virginia.

Table B-48. Summary of results of hydropower resource assessment of West Virginia.

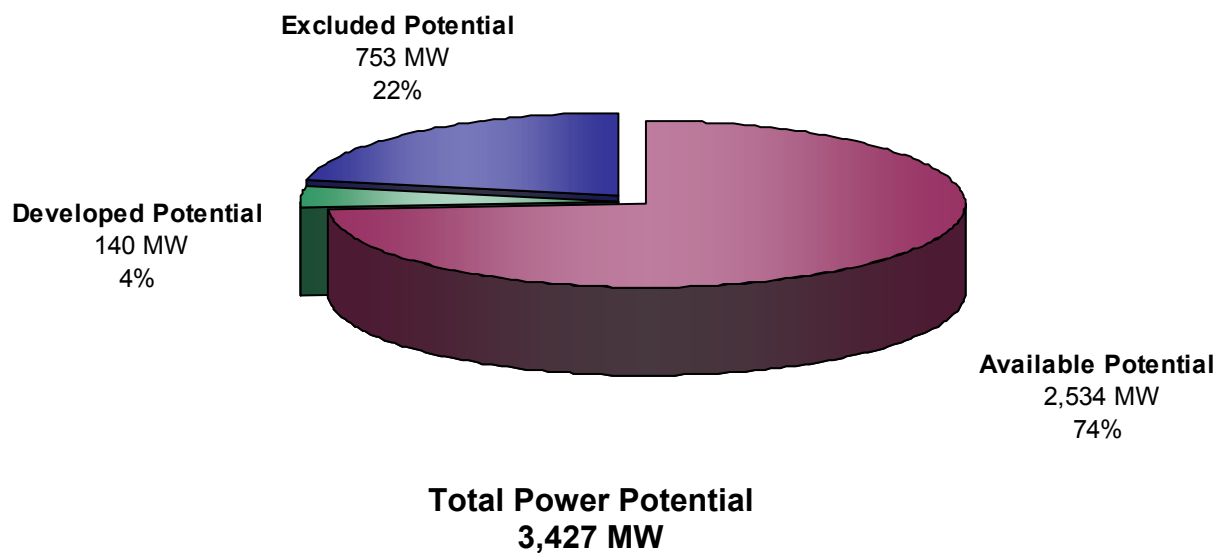| Annual Mean Power (MW)	Total	Developed	Excluded	Available[a]
TOTAL POWER	**3,427**	**140**	**753**	**2,534**
TOTAL HIGH POWER	**2,703**	**139**	**716**	**1,848**
High Head/High Power	1,832	76	597	1,159
Low Head/High Power	871	63	119	689
TOTAL LOW POWER	**724**	**1**	**37**	**686**
High Head/Low Power	484	0	32	452
Low Head/Low Power	240	1	5	234
Conventional Turbine	85	1	2	82
Unconventional Systems	33	0	0	33
Microhydro	122	0	3	119
a. No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.				

Excluded Potential
753 MW
22%

Developed Potential
140 MW
4%

Available Potential
2,534 MW
74%

Total Power Potential
3,427 MW

Figure B-237. Power category distribution of the total power potential (annual mean power) of water energy resources in West Virginia.

High Power
1,848 MW
73%

High Head/Low Power
452 MW
18%

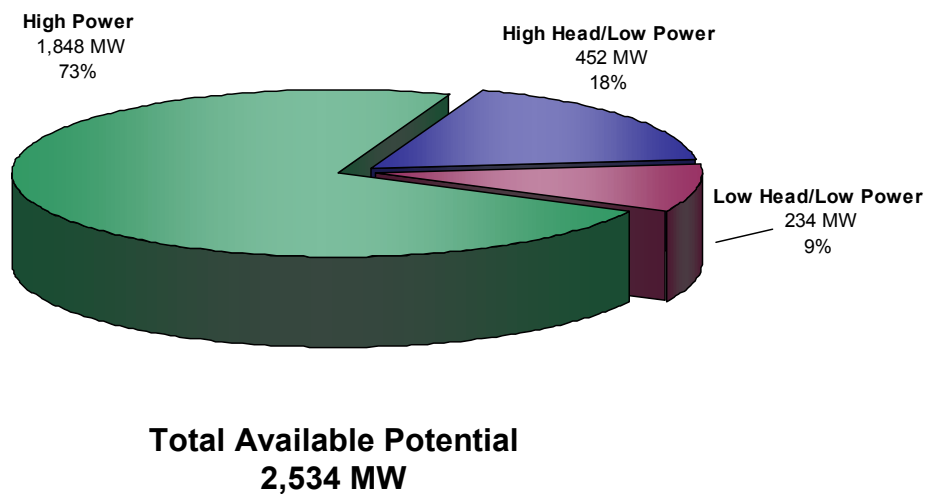**Low Head/Low Power**
234 MW
9%

Total Available Potential
2,534 MW

Figure B-238. Power class distribution of the available power potential (annual mean power) of water energy resources in West Virginia.

Microhydro Total
122 MW
Microhydro Developed
& Excluded
3 MW

Microhydro Available
119 MW
(51% of total available)

Conventional
Turbines Total
85 MW
Conventional
Turbines Available
82 MW
(35% of total available)

Conventional Turbines
Developed and Excluded
3 MW

Unconventional
Systems Total
33 MW
Unconventional Systems Available
33 MW
(14% of total available)

Unconventional
Systems Developed & Excluded
0 MW

Low Head/Low Power Totals
Total Potential: 240 MW
Developed Potential: 1 MW
Excluded Potential: 5 MW
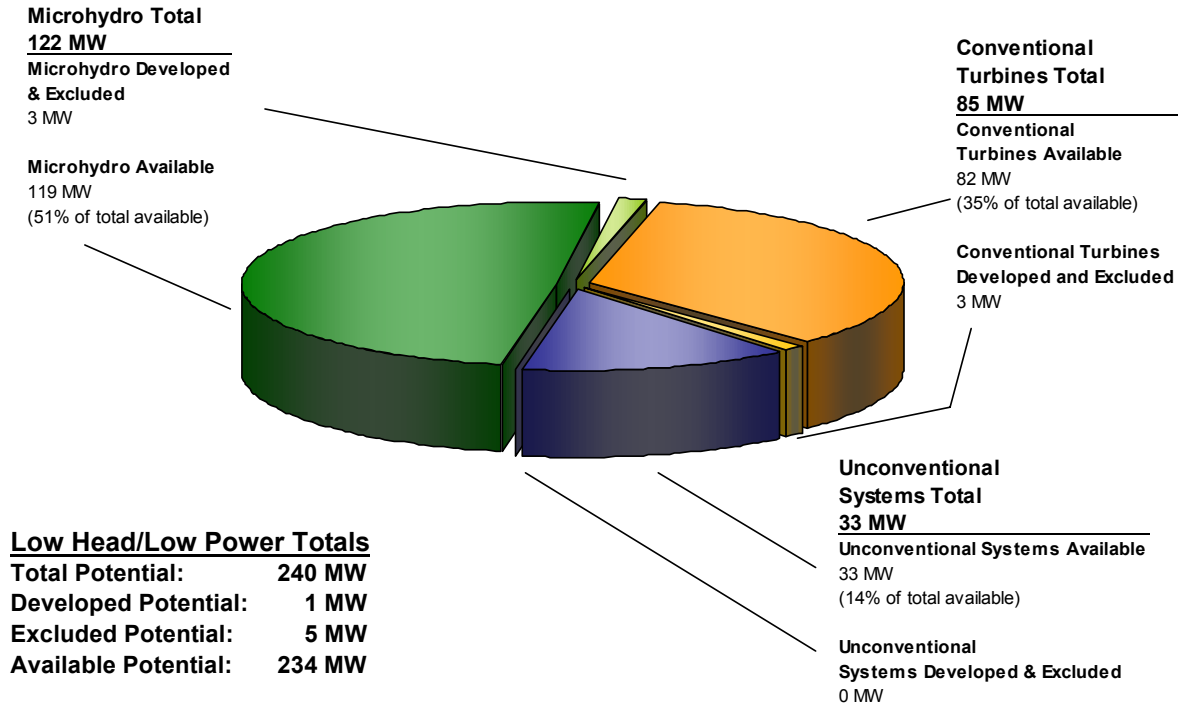**Available Potential:** 234 MW

Figure B-239. Distribution of the low head/low power power potential (annual mean power) of water energy resources in West Virginia among three low head/low power hydropower technology classes.
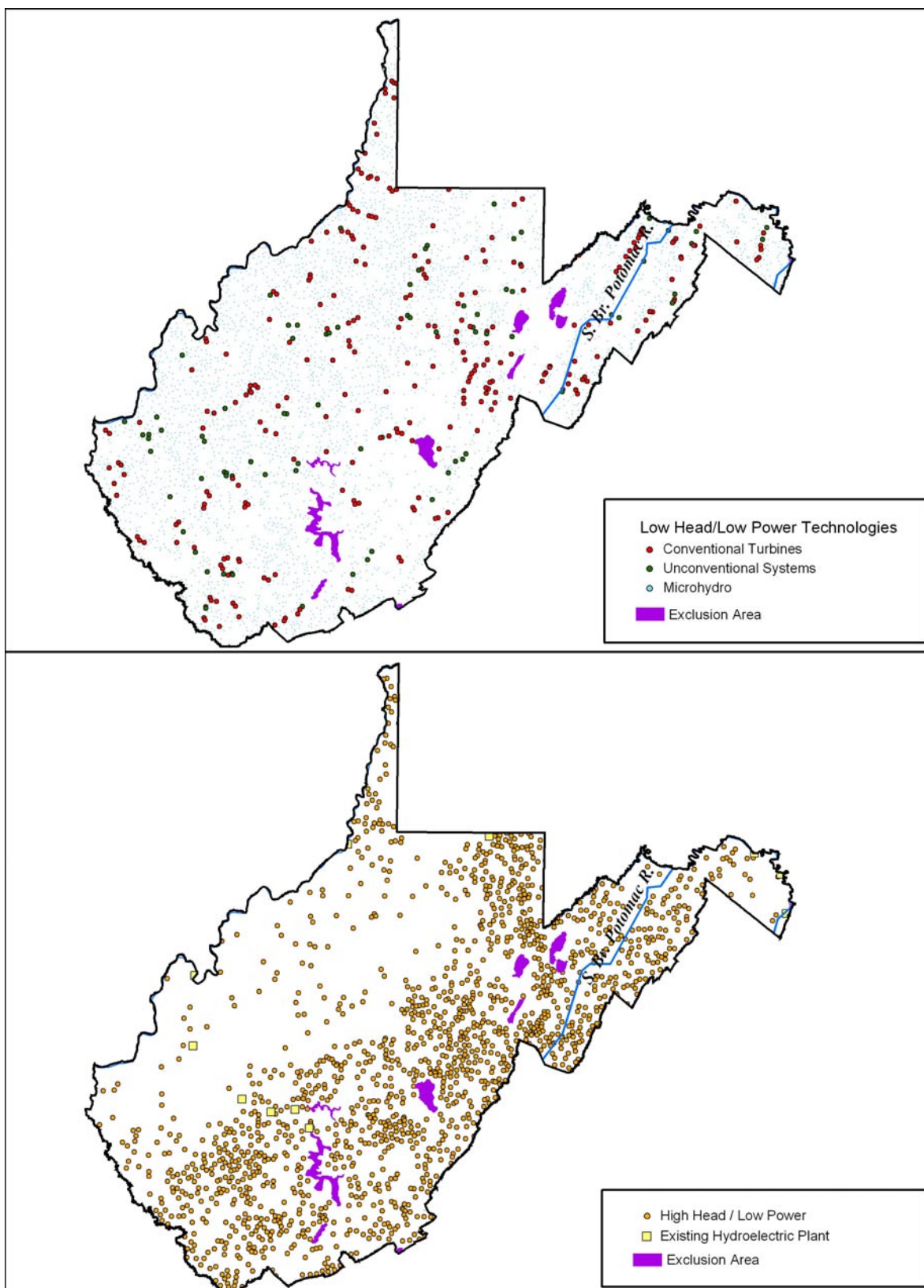
Figure B-240. Low head/low power and high head/low power water energy sites, and existing hydroelectric plants in West Virginia.
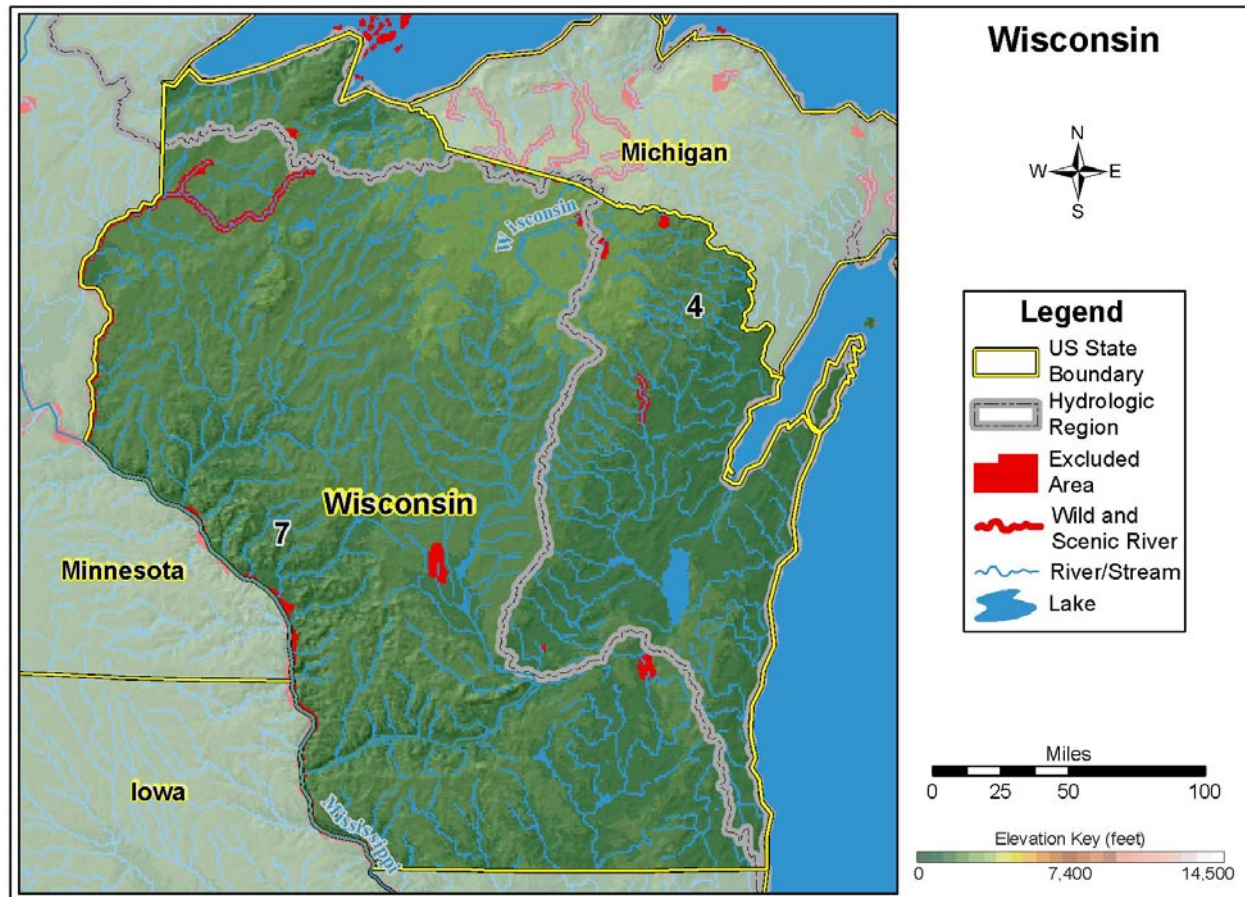
B.49 Wisconsin

Figure B-241. Wisconsin.

Table B-49. Summary of results of hydropower resource assessment of Wisconsin.

| Annual Mean Power (MW)	Total	Developed	Excluded	Available[a]
TOTAL POWER	**1,595**	**264**	**189**	**1,142**
TOTAL HIGH POWER	**996**	**242**	**152**	**602**
High Head/High Power	502	168	25	309
Low Head/High Power	494	74	127	293
TOTAL LOW POWER	**599**	**22**	**37**	**540**
High Head/Low Power	149	5	6	138
Low Head/Low Power	450	17	31	402
Conventional Turbine	157	16	10	131
Unconventional Systems	84	0	16	68
Microhydro	209	1	5	203
a. No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.				
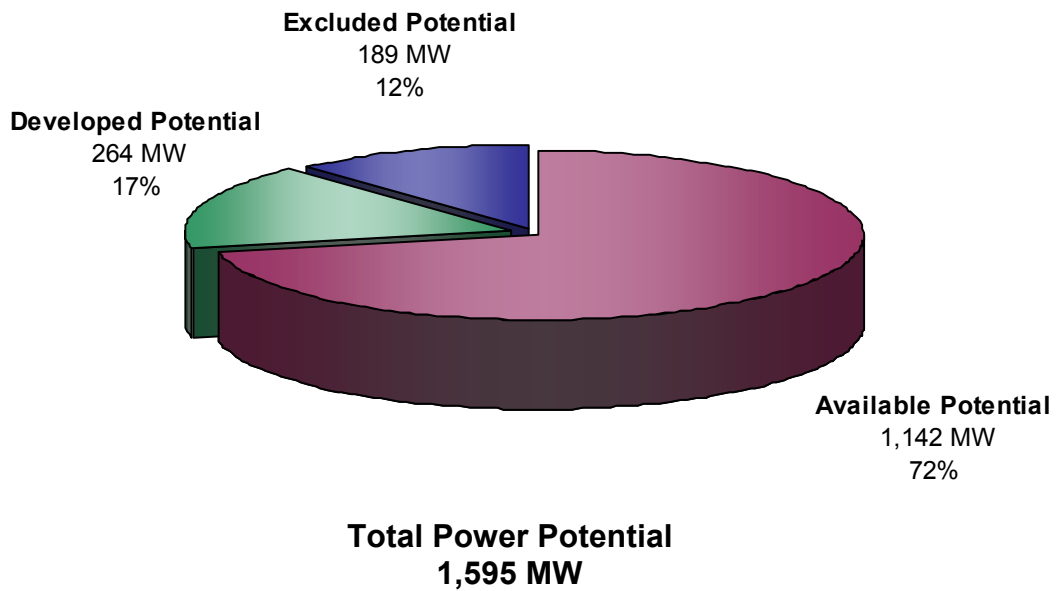
Figure B-242. Power category distribution of the total power potential (annual mean power) of water energy resources in Wisconsin.
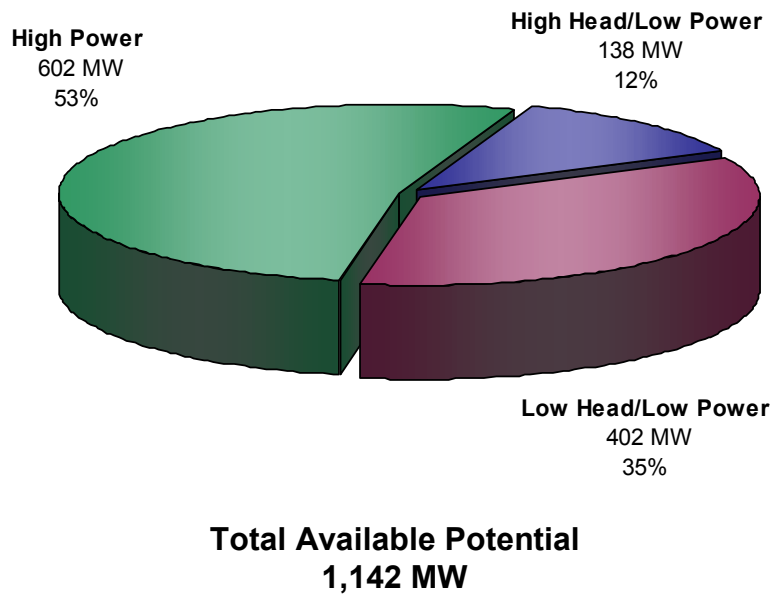

Figure B-243. Power class distribution of the available power potential (annual mean power) of water energy resources in Wisconsin.

Microhydro Total
209 MW

Microhydro Developed
& Excluded
6 MW

Microhydro Available
203 MW
(50% of total available)

Conventional
Turbines Total
157 MW

Conventional
Turbines Available
131 MW
(33% of total available)

Conventional Turbines
Developed and Excluded
26 MW

Unconventional
Systems Total
84 MW

Unconventional Systems Available
68 MW
(17% of total available)

Unconventional
Systems Developed & Excluded
16 MW

Low Head/Low Power Totals

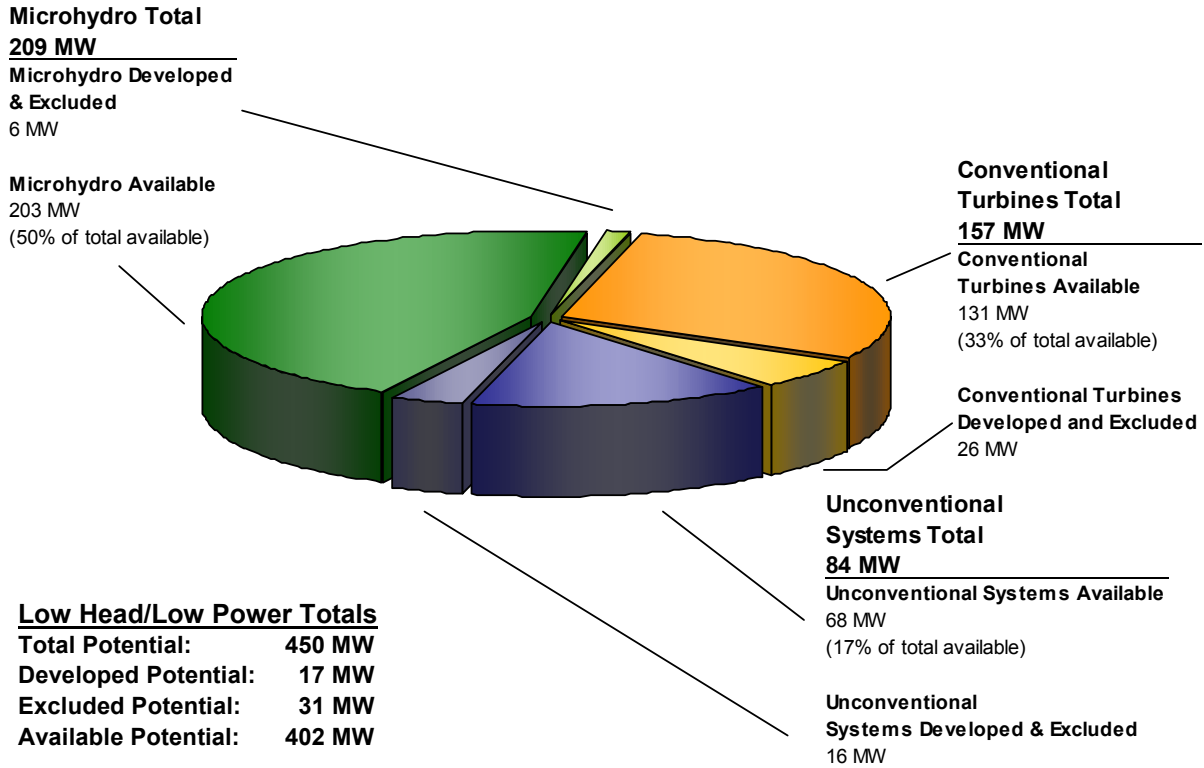|	
Total Potential:	**450 MW**
Developed Potential:	**17 MW**
Excluded Potential:	**31 MW**
Available Potential:	**402 MW**

Figure B-244. Distribution of the low head/low power power potential (annual mean power) of water energy resources in Wisconsin among three low head/low power hydropower technology classes.
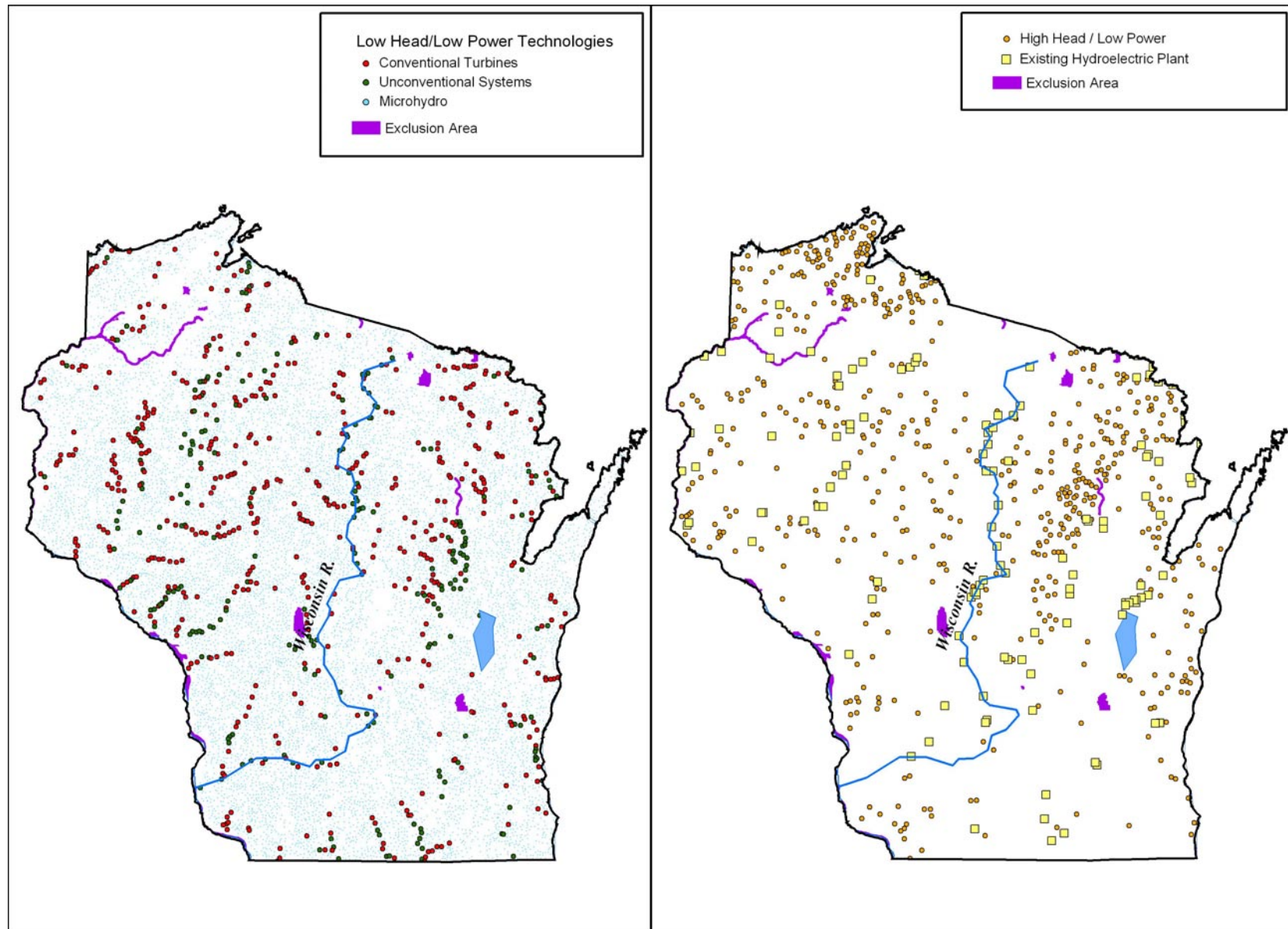
Figure B-245. Low head/low power and high head/low power water energy sites, and existing hydroelectric plants in Wisconsin.
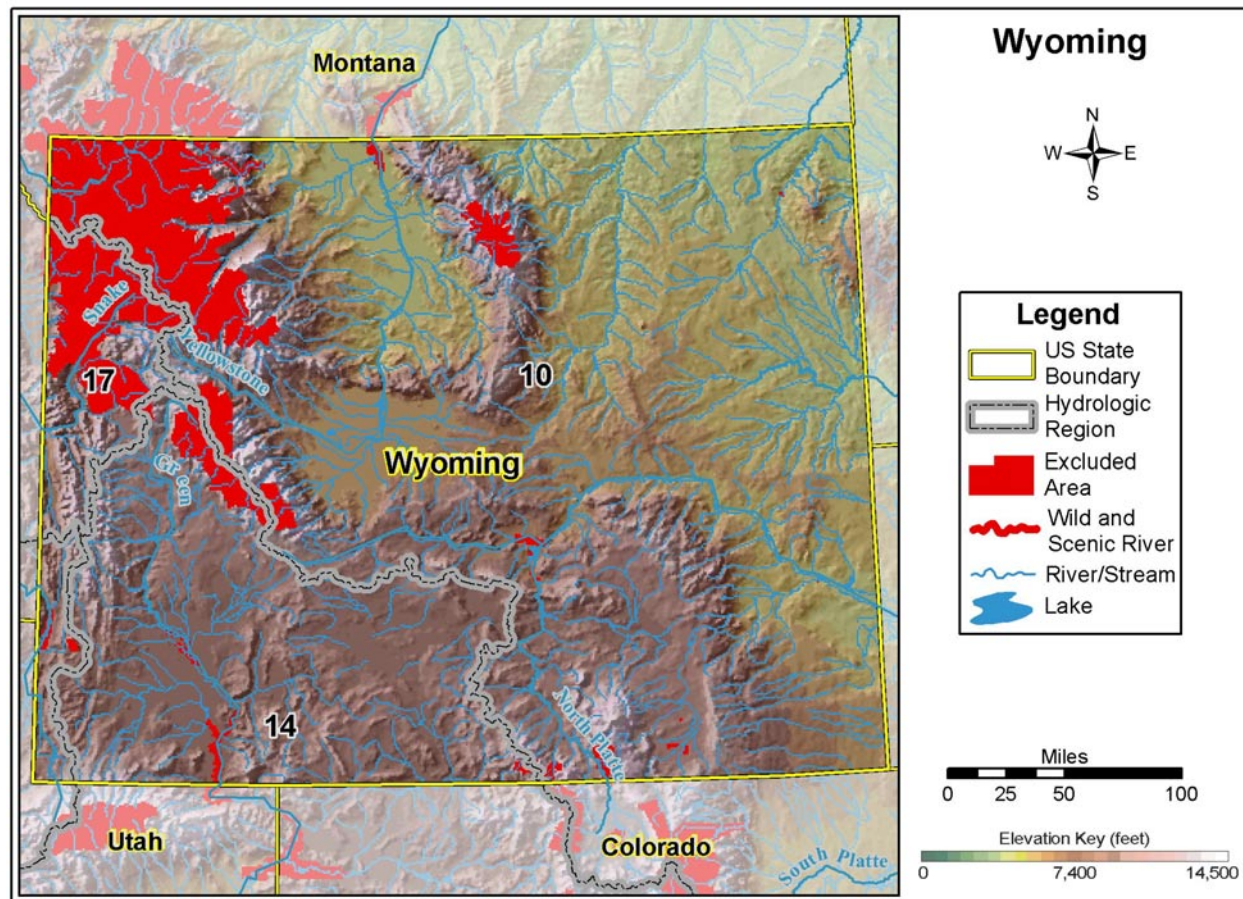
B.50 Wyoming

Figure B-246. Wyoming.

Table B-50. Summary of results of hydropower resource assessment of Wyoming.

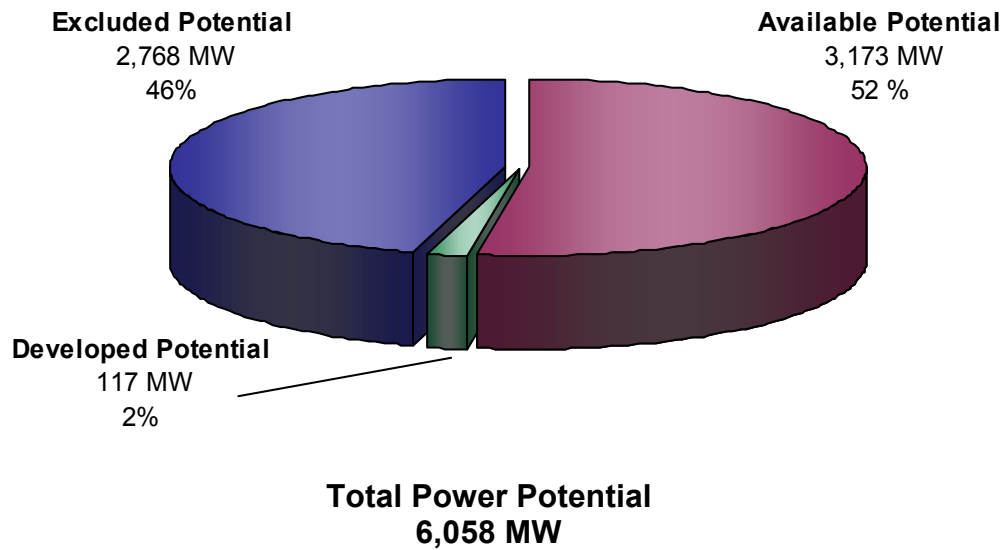| Annual Mean Power (MW)	Total	Developed	Excluded	Available[a]
TOTAL POWER	**6,058**	**117**	**2,768**	**3,173**
TOTAL HIGH POWER	**4,231**	**116**	**2,211**	**1,904**
High Head/High Power	3,934	116	2,150	1,668
Low Head/High Power	297	0	61	236
TOTAL LOW POWER	**1,827**	**1**	**557**	**1,269**
High Head/Low Power	1,299	1	497	801
Low Head/Low Power	528	0	60	468
Conventional Turbine	221	0	27	194
Unconventional Systems	59	0	12	47
Microhydro	248	0	21	227
a. No feasibility or availability assessments have been performed. "Available" only indicates net potential after subtracting developed and excluded potentials from total potential.				

Excluded Potential
2,768 MW
46%

Available Potential
3,173 MW
52 %

Developed Potential
117 MW
2%

Total Power Potential
6,058 MW

Figure B-247. Power category distribution of the total power potential (annual mean power) of water energy resources in Wyoming.

High Power
1,904 MW
60%

High Head/Low Power
801 MW
25%

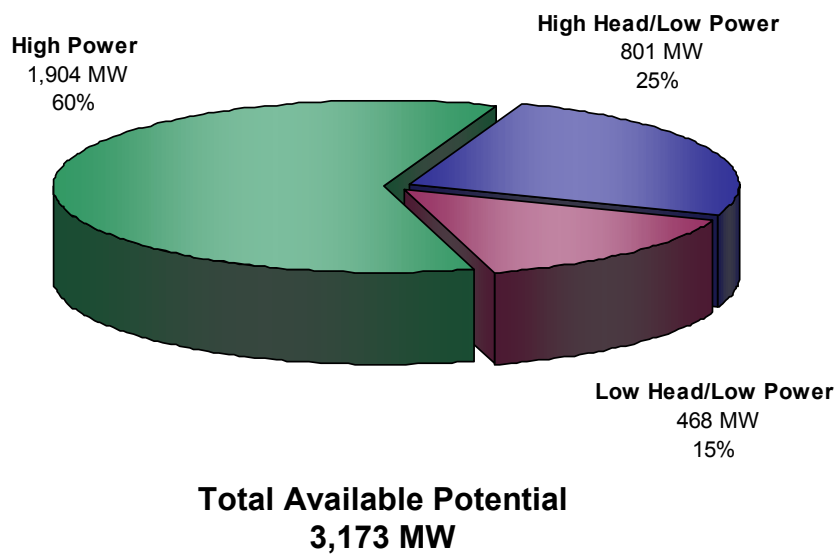**Low Head/Low Power**
468 MW
15%

Total Available Potential
3,173 MW

Figure B-248. Power class distribution of the available power potential (annual mean power) of water energy resources in Wyoming.

Microhydro Total
248 MW
Microhydro Developed
& Excluded
21 MW

Microhydro Available
227 MW
(49% of total available)

Conventional
Turbines Total
221 MW
Conventional
Turbines Available
194 MW
(41% of total available)

Conventional Turbines
Developed and Excluded
27 MW

Unconventional
Systems Total
59 MW
Unconventional Systems Available
47 MW
(10% of total available)

Unconventional
Systems Developed & Excluded
12 MW

Low Head/Low Power Totals
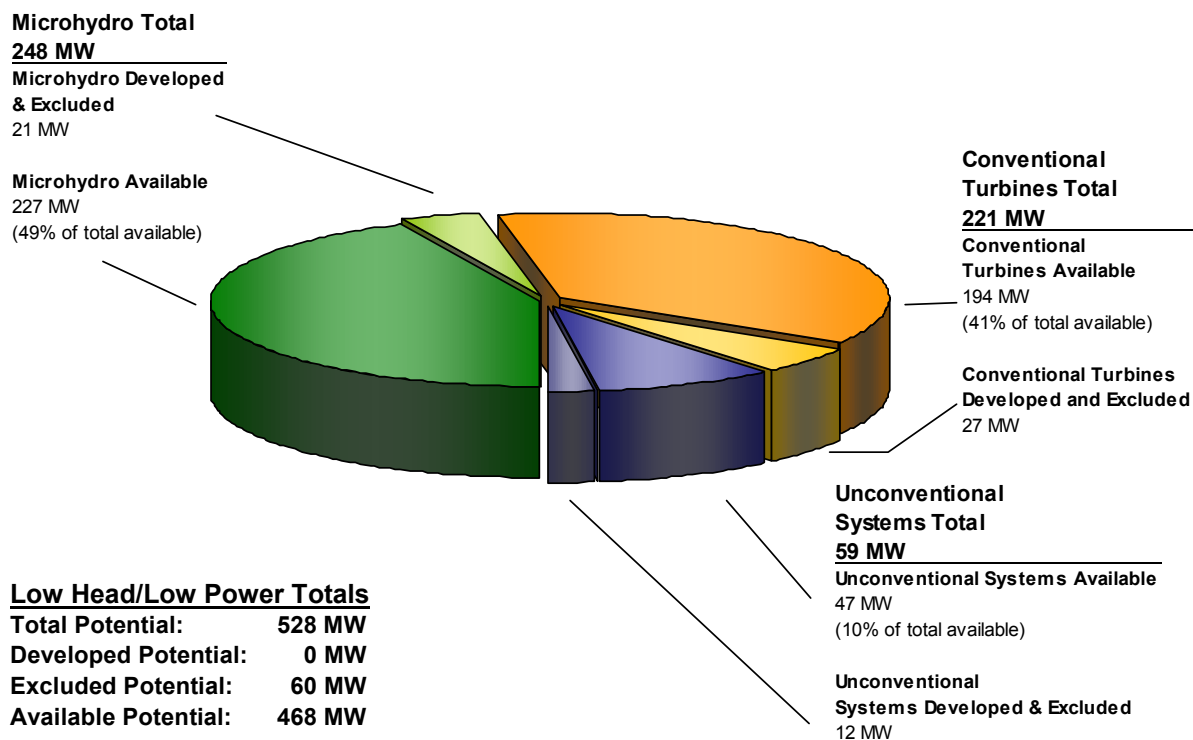|	
Total Potential:	**528 MW**
Developed Potential:	**0 MW**
Excluded Potential:	**60 MW**
Available Potential:	**468 MW**

Figure B-249. Distribution of the low head/low power power potential (annual mean power) of water energy resources in Wyoming among three low head/low power hydropower technology classes.
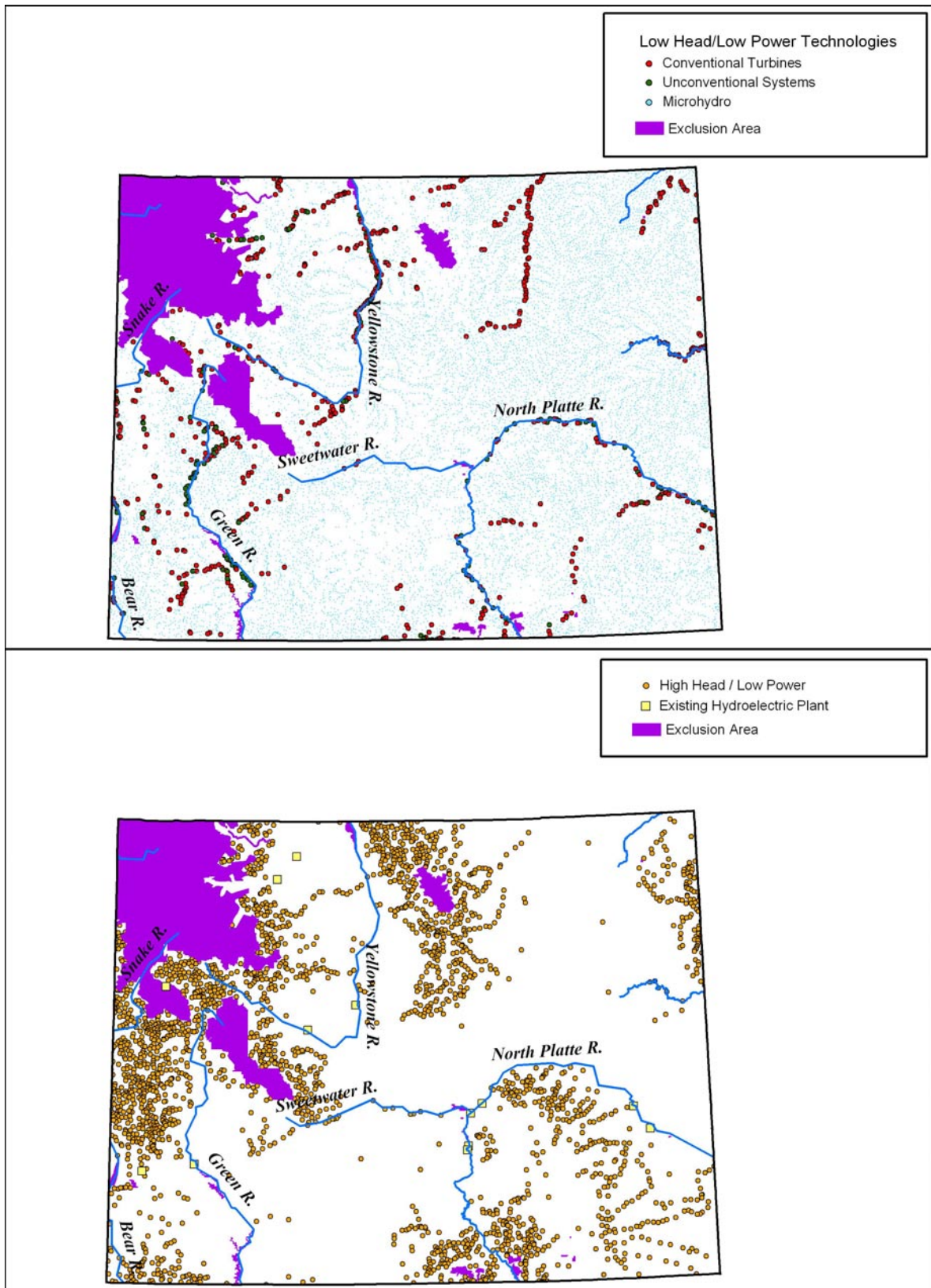
Figure B-250. Low head/low power and high head/low power water energy sites, and existing hydroelectric plants in Wyoming.